

September 1991

U.S.A. \$3.95

Canada \$4.95

UK £2.80

An IDG  
Communications  
Publication

VIDEO  
TOASTER TIPS  
- P.56



THE NAME OF THE GAME IS...

# OUTPUT!

- ◆ **PostScript Power:**  
5 Low-Cost Lasers
- ◆ **Color Separations:**  
3 DTP Solutions
- ◆ **Graphics Export:**  
Amiga To Mac/PC

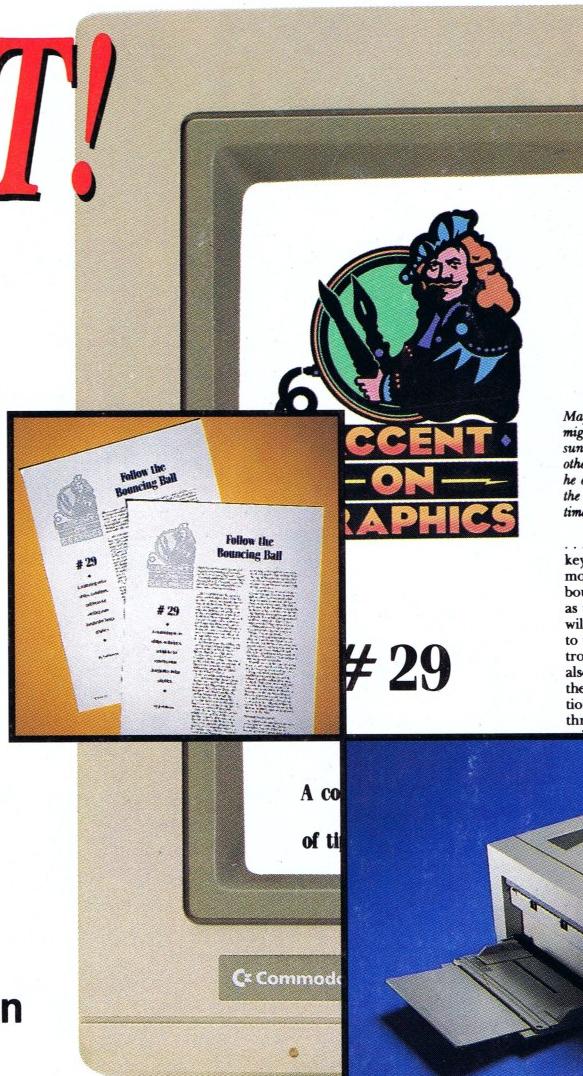
## PLUS!

- ◆ HD Crash Recovery
- ◆ "Accent" on Mars
- ◆ Mass-Storage Media
- ◆ 'Ultimate' Flight Simulation
- ◆ A500 Expansion
- ◆ ChromaKey Effects



09

9 770883 239019



# 29



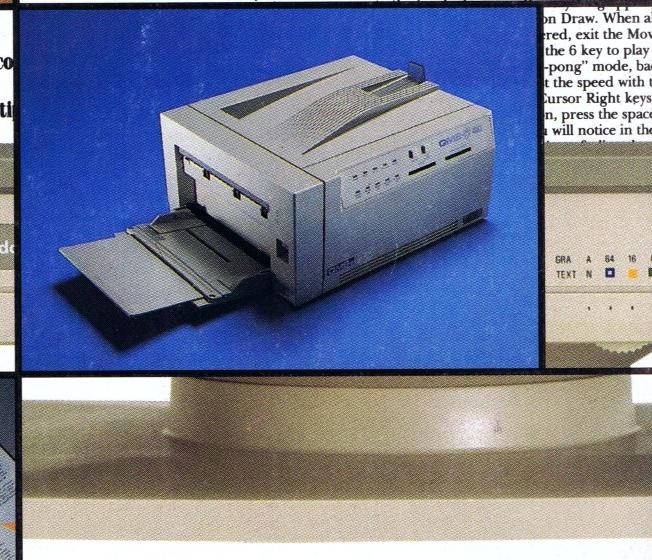
Follow the  
Bouncing Ball

Maybe because it was the July issue, Joel might have been thinking of blue skies, sunny shores, Fourth of July cookouts, and other simple summertime diversions. Maybe he even picked up a beachball, tossed it in the air, watched it bounce playfully a few times, and suddenly it came to him...

... ALL YOU HAVE to do is press a key on your Amiga and a ball on the monitor bounces toward you, then rebounds off the screen. It's as simple as that! And creating this sequence will not only be a good introduction to the use of DeluxePaint III's (Electronic Arts) Move requester, but it will also provide a great way to show off the Amiga's (and your own) animation capabilities. Once you have gone through the sequence a few times in

into perspective space the Z-axis. For the ball at the top of the screen to move to the bottom, enter a Z value of about 160 in low resolution.

Click on Preview to see your settings. You should see a ball or a box representing a drop frame by frame from the bottom of the screen (left-most) to the central part of the screen. The illustration is a representation of this path. If your ball goes down, change the Z value to negative rather than a positive. Whether down is positive or negative Y value depends on the "Original" setting in Paint.



# 15 programmers & engineers, 4 custom chips, 350,000 lines of code and 5325 cinnamon cats later...

In early 1982 a group of brilliant computer designers in Los Gatos, California set out to create a new kind of computer. Their dream was to build a machine that would contain the visual power that other computers lacked. So they designed breakthrough graphic coprocessors, powerful sprites, and then built it all around NTSC video timing. The nickname for the machine was Lorraine, and its mascot was a red and white bouncing ball.

## Thanks, Jay

In October of 1985 Jay Miner and his team of pioneers brought a stunning new creative tool to the world. The Amiga was a shining beacon of the future to a special breed of hackers, artists, and visionaries. One group of these hackers was drawn together from



**Team Toaster:**  
**Hardware:**

Tim Jenison,  
Brad Carvey,  
Gary Krohe\*  
Charles Steinkuehler.  
**Software:**

Tim Jenison,  
Stuart Furgason,  
Steve Hartford,  
Allen Hastings,  
Daniel Kaye,  
Steve Kell,  
Jamie Purdon,  
Steve Speier,  
Peter Tjeerdsma,  
Ken Turcotte.

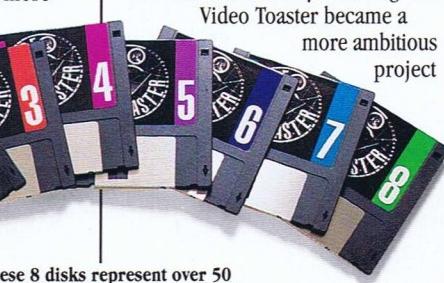
**Documentation:**  
Robert Blackwell,  
Nick Lavroff\*  
Brent Malnack,  
Steve Peterson,\*  
Tony Stutterheim.  
**Software Design:**

Paul Montgomery,  
Mark Randall,  
Kiki Stockhammer.  
\*not pictured

around the country to form NewTek in Topeka, Kansas. They shared a common desire to expand on the technological marvel called the Amiga. They saw the Amiga as more than a computer, it was the beginning of a revolution.

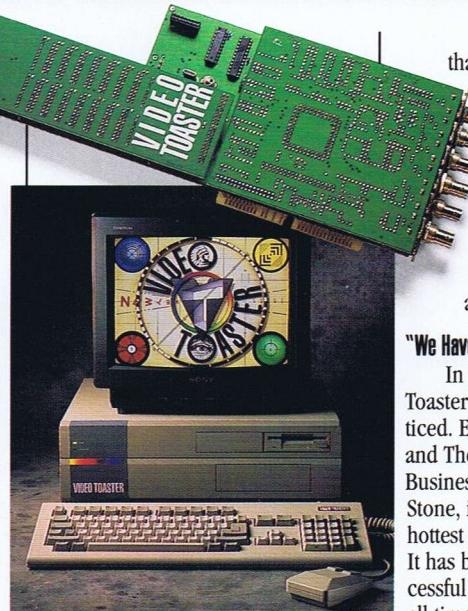
## The Super Amiga

What if the Amiga had more resolution, more colors, more power,



These 8 disks represent over 50 man-years of programming effort.

Circle 38 on Reader Service card.



more speed; in short, more of everything that makes the Amiga great? It wouldn't be like a computer anymore. It would be as powerful as expensive network-level video equipment. But it would mean designing four complex VLSI chips, it would mean writing 350,000 lines of assembly language software. Ultimately it would mean inventing whole new technologies. Just the kind of insane challenge that hackers can't resist. Perhaps more than anything, the fact that "it couldn't be done" is what drove "Team Toaster" to do the impossible.

## "It'll Never Ship"

In early 1987, Team Toaster moved away from the rest of NewTek to a secret location codenamed "Alcatraz." No office hours, no phone calls, no interruptions. They worked 70 hour weeks. They invented bizarre tricks to drive the 68000, copper, and blitter to new levels of performance. They evolved strange hardware hacks to emulate expensive parts. They concocted their own cinnamon candy. Building the Video Toaster became a more ambitious project

than the Amiga itself. Every night, every weekend, every holiday, the world went about its business, and the lights at 'Traz kept burning. It didn't matter what anyone else said, Team Toaster was racing after a very personal dream.

## "We Have Toast!"

In October 1990 the Video Toaster® shipped. The world noticed. Everyone from USA Today and The New York Times, to Business Week and Rolling Stone, is calling the Toaster the hottest video product ever. It has become the most successful Amiga product of all time.

In fact, the Toaster is so hot that it's bringing the Amiga to new markets. The Video Toaster stand-alone system (an Amiga 2000HD with factory-installed Toaster) was the hit of Comdex, the world's largest IBM PC show, and was even acknowledged as the hit of MacWorld Expo by MacWeek Magazine. The Video Toaster is giving our dealers the opportunity to win over the corporate, educational, and pro video users that the Amiga needs for success in the nineties.

When the Amiga shipped in October 1985 it held the promise of video on a desktop. The shipment of the Video Toaster fulfills that promise. And by the way, the lights are still on at 'Traz.



**NewTEK**  
INCORPORATED

1-800-843-8934

This sign sat proudly in front of Amiga headquarters in Los Gatos, California, where the desktop video revolution began in October of '85.

Amiga is a trademark of Commodore-Amiga, Inc.



# TURN YOUR AMIGA INTO A VIDEO PRODUCTION SYSTEM!

**ShowMaker™** is the first package that turns your Amiga into a complete desktop video solution, providing sequencing of video, animation, and Toaster effects together with mattes\*, wipes, titling, and multi-channel soundtracks. In short, ShowMaker lets you quickly and easily assemble full video productions on your Amiga.

## VIDEO PRODUCTION MADE EASY

Integrate video, animations, music, effects, and more with the ease of the mouse. ShowMaker's unique Time-Line Production Interface gives you simple graphic controls to "layout" the order and duration of your elements. ShowMaker lets you assemble your whole production, from animations and video to Toaster effects and sound effects.

## VIDEO CONTROL

ShowMaker gives you control over genlocks, videodisc players, and VCRs. Just tell ShowMaker when to cut in your video, and it will automatically search to the correct position and cut or fade in the genlocked signal at exactly the right time.\* Video sequencing has never been this easy!

## TOASTER POWER

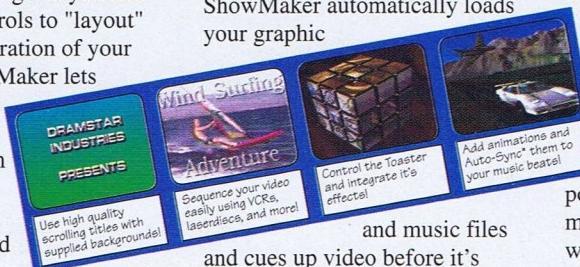
If you have a Video Toaster, you need ShowMaker. Only with ShowMaker can you sequence a series of Toaster



effects directly into your production, making for spectacular video. And ShowMaker makes it easy!

## AUTOMATIC PRE-LOADING

ShowMaker automatically loads your graphic



and music files and cues up video before it's needed, without interrupting the playback. This means you can create long running productions, limited by disk space, not RAM.

## BUILT-IN TITLING

ShowMaker's built-in video titler gives you dynamic scrolling titles. And with ShowMaker you can run titles over video and animation, even adding special effects like drop

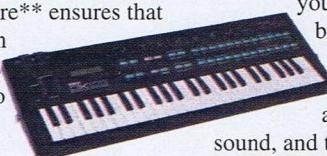
shadow and outline! ShowMaker also includes a collection of high quality video fonts and exciting backgrounds.

## EXCITING TRANSITIONS

ShowMaker features dozens of built-in transitions, including wipes, fades, and dissolves. You can create exciting professional-style transitions with just a click of the mouse.

## DYNAMIC SOUNDTRACKS

Add dynamic stereo soundtracks just as easily. Simply position segments on any of the music or sound effects tracks with the mouse. ShowMaker supports MIDI output, MIDI files, SMUS files, and IFF samples. And ShowMaker's unique auto-sync feature\*\* ensures that your production always remains synchronized to the music!



## EDITING POWER

With ShowMaker you can preview and refine your production at any time during its development. Then quickly and easily adjust, cut, copy, and paste tracks until your show is perfect. ShowMaker will even generate storyboards and cue sheets to help you visualize and fine tune your production.



## IT'S A WRAP!

Hit the play button and ShowMaker plays back your production in real time, automatically synchronizing the video, animation, soundtrack, and titling. A true multimedia presentation. Then record your production to videotape for a first generation Master Tape!



## REACH YOUR AUDIENCE

Business, education, presentation or entertainment. Whatever

your message, video brings it to life. There is no easier way to combine graphics, animation, video, sound, and titling into exciting and effective productions.

ShowMaker turns your Amiga into a video production system. Join the video revolution by seeing your dealer or calling us at 1-416-602-4000.

By the way, this entire ad was created with Professional Page 2.0 desktop publishing software, another high quality Gold Disk product.



## GOLD DISK

P.O. Box 789, Streetsville  
Mississauga, Ontario, Canada  
L5M 2C2 (416) 602-4000  
\*Additional hardware required  
\*\*Patent pending. ShowMaker and Professional Page are trademarks of Gold Disk Inc. All other products mentioned are trademarks of their respective owners.

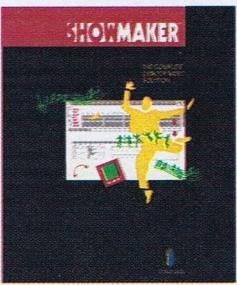
## SEE THE POWER!

Drop by your local dealer and ask to see our new ShowMaker demonstration tape "Multimedia Muscle", produced entirely with ShowMaker!

Circle 19 on Reader Service Card

## SHOWMAKER

*The Complete Desktop Video Solution*

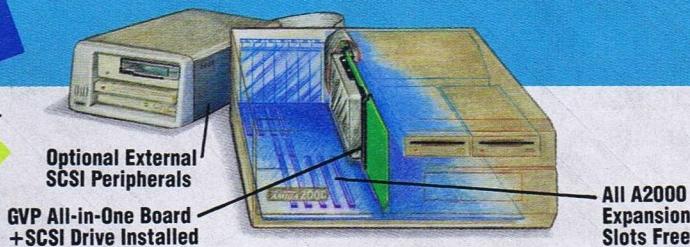


# The Ultimate All-in-One Amiga® 2000 Add-on...

## **68030 POWER+ 16MB RAM+SCSI CONTROLLER**

### Replaces up to FOUR "normal" expansion boards!

**IMPACT**  
Series II



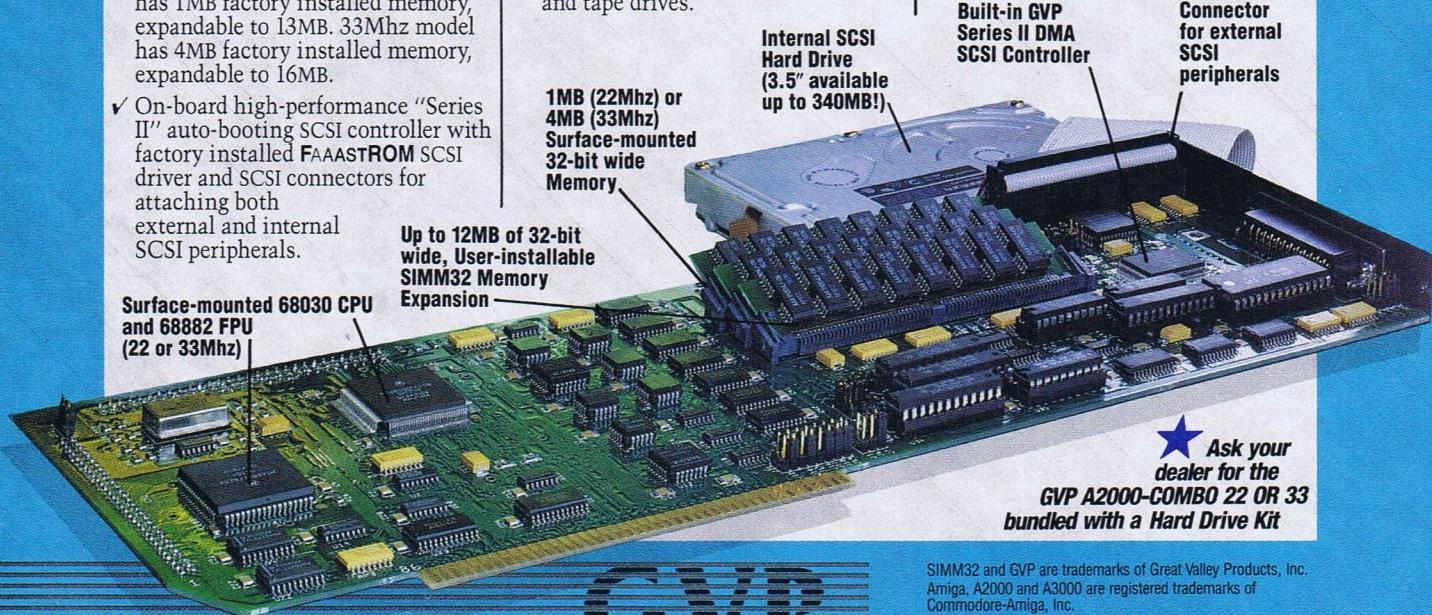
**Now, a 22 or 33 Mhz 68030 accelerator board, up to 16MB of 32-bit wide RAM and a high-performance SCSI hard disk controller in a single A2000® "CPU slot" expansion board!**

#### Check out these features:

- ✓ The perfect companion for NewTek's Video Toaster™
- ✓ 22Mhz or 33Mhz factory installed, surface mounted, 68030 CPU and 68882 FPU.
- ✓ Up to 16MB of 32-bit wide memory expansion. 4MB minimum factory installed memory on 33Mhz version, 1MB minimum for 22Mhz.
- ✓ GVP's new custom 32-bit wide, 1MB or 4MB, SIMM32™ memory modules offer flexible, easy-to-install memory expansion. 22Mhz model has 1MB factory installed memory, expandable to 13MB. 33Mhz model has 4MB factory installed memory, expandable to 16MB.
- ✓ On-board high-performance "Series II" auto-booting SCSI controller with factory installed **FAAASTRON** SCSI driver and SCSI connectors for attaching both external and internal SCSI peripherals.

- ✓ Direct DMA access to the full 16MB range of 32-bit wide memory expansion by the on-board SCSI controller. Due to the A2000 bus architecture, this is ONLY possible when SCSI controller is placed directly on the 68030 CPU bus (as is the case with the A3000!). Provides ultimate SCSI hard disk performance!
- ✓ GVP's legendary **FAAASTRON** SCSI driver supports virtually all SCSI devices currently on the market, including hard disk drives, CD-ROM drives, Magneto-Optical drives, removable media drives and tape drives.

- ✓ Internal SCSI Hard Drive (3.5" available up to 340MB!)
- ✓ 1MB (22Mhz) or 4MB (33Mhz) Surface-mounted 32-bit wide Memory
- ✓ Up to 12MB of 32-bit wide, User-installable SIMM32 Memory Expansion



Ask your  
dealer for the

**GVP A2000-COMBO 22 OR 33**  
bundled with a Hard Drive Kit

SIMM32 and GVP are trademarks of Great Valley Products, Inc.  
Amiga, A2000 and A3000 are registered trademarks of Commodore-Amiga, Inc.  
Video Toaster is a trademark of NewTek Inc.

**GVP**

GREAT VALLEY PRODUCTS INC.  
600 Clark Avenue, King of Prussia, PA 19406

For more information, or for nearest dealer, call today. Dealer inquiries welcome.

Tel. (215) 337-8770 • FAX (215) 337-9922

**CIS — France**  
Europarc • 14, Avenue Gustave Hertz • 33600 Pessac  
T. (33) 56-363-441 • F. (33) 56-362-846

**SDL — United Kingdom**  
Unit 10, Ruxley Corner Ind Est.  
Edgington Way, Sidcup • Kent DA 14555  
T. (44) 81-300-3399 • F. (44) 81-300-5765

**Power Peripherals — Australia**  
1st Floor, 257 Hawthorne Rd.  
Caulfield North 3161 • Victoria  
T. (61) 3-532-8553 • F. (61) 3-532-8556

**DTM — West Germany**  
Dreherrenstein 6A • 6200 Wiesbaden-Auringen  
T. (49) 61-27-4065/67 • F. (49) 61-27-66276

**Datacom APS — Denmark**  
Kirkerfengen 23 • Hatting • 8900 Horsens  
T. (45) 75-65-37-88 • F. (45) 65-37-16

**Pixel Soft — Spain**  
C/ Gral. Franco • 7 Entlo F-G • 3400 Palencia  
T. (34) 88-751180 • F. (34) 88-751191

**Broadline OY — Finland**  
Vanha Porvoontie 295 • 01260 Vantaa  
T. (358) 087-479-00 • F. (358) 087-449-44

**Merlin — Austria**  
Dorfstrasse 5 • A-60674 Rinn • Innsbruck  
T. (43) 522-388-96 • F. (43) 522-388-97

**Non-Stop SPA — Italy**

Filiale di Vendita Admin.  
40057 Cadriano di Granarolo • Via B. Buozzi, 11 Bologna  
T. (39) 51-765299 • F. (39) 51-765252

**Datacorp — Canada**  
431 Hampton Court Rd.  
Dollard des Ormeaux • Quebec H9G 1L1  
T. 514-624-4700 • F. 514-620-7136

**Microtron Computerprodukte — Switzerland**  
Bahnhofstrasse 2, Postfach 69 • CH-2542 Pieterlen  
T. (41) 32-87-2429 • F. (41) 32-87-24-82

# •C•O•N•T•E•N•T•S•

## FEATURES

### POWER TO THE PEOPLE: POSTSCRIPT LASER PRINTERS

By Lauren Lovhaug, with

*Frank Hudson* ..... 20

With street prices as low as \$1500, many Amiga users can now afford the professional quality of PostScript printers for personal use. Here's the lowdown on five leading low-end models.

### "SEPARATING" THE DTP PACK

*By Eyo Sama* ..... 29

Quality color separations are now a legitimate claim of the current generation of Amiga desktop-publishing packages. A leading authority in Amiga DTP evaluates the performance of the three top programs in the field.

### ROYAL OPPORTUNITIES

*By Gene Brawn* ..... 40

The superiority of graphics created on the Amiga can translate to lucrative opportunities for output on other platforms. Here's a practical "economics" course in what you need and how to do it when it comes to converting Amiga-generated graphics for use on Macs and PCs.

## ARTICLES

### OPERATION PHOENIX

*By Sheldon Leemon* ..... 45

No pun intended, but this truly is a "crash" course in how to avoid catastrophic data loss—both through sound prevention methods and effective hard-disk recovery procedures if you do experience a crash.

## COLUMNS

### CHIEF CONCERNs *By Doug Barney* ..... 6

The editor just received the results of a couple of reader surveys and wants to pass on a few comments about what some of you have been saying.

### ACCENT ON GRAPHICS

*By Joel Hagen* ..... 54

Join Joel for some fascinating interplanetary exploration as he shows you how to create a Mars simulation using some nifty landscape-generating software.



*Getting good output for what you create on your Amiga—text, graphics, video, animations, or whatever—is the all-important, yet tricky final step in the process. Our "Amiga Output" special this month attacks the problem on several fronts, from low-cost PostScript laser printers, through desktop publishing and color separations to image-processing-and-conversion among different systems. So, let's get it on and get it out!*

### VIDEO SUITE *By Geoffrey Williams* ..... 56

This month our new video column shows you where to find high-quality fonts that work on the Video Toaster and how to use them most effectively in your video-titling projects.

## DEPARTMENTS

### OVERSCAN ..... 8

Amiga News and New Products, now in a handy, all-in-one column. Plus helpful "on-line" remarks about BIX, our neighboring network.

### HELP KEY ..... 62

Lou adds his input to our "Amiga output" theme this month with some timely advice on printer drivers and printer compatibility.

### AW PRODUCT INFORMATION ..... 100

To contact the developer of any product mentioned in this issue of *AmigaWorld*, consult our all-in-one "Manufacturers'/Distributors' Addresses" list.

### THE LAST WORD ..... 112

At the rear, it's readers to the fore every month on AW's final page.

## REVIEWS

### REMOVABLE MEDIA DRIVES ..... 14

If the "No Vacancy" sign is on at the Hard-Drive Hotel, try one of these four mass-storage solutions to data overload.

### BODEGA BAY (*California Access*) ..... 16

An overview of the "big box" in the A500 expansion game.

### PROPER GRAMMAR (*Softwood*) ..... 80

If you need more than a spelling program for your writing, take a look at this new grammar/style checker.

### RASTERLINK (*Active Circuits*) ..... 86

The all-new version of ImageLink supports a wide variety of formats for 24-bit image-conversion routines.

### CHROMAKEY (*MicroSearch*) ..... 90

Lay video over your computer-generated graphics for a host of neat layering effects.

### HYPERBOOK (*Gold Disk*) ..... 98

An all-purpose applications generator that serves a number of presentation needs.

## GAMES

### CRIB NOTES *By Peter Olafson* ..... 73

Pro gaming tips from the master on the intricate ins-and-outs of the latest Amiga games.

### ARMOUR-GEDDON (*Psynopsis*) ..... 73

State-of-the-art flight simulation.

### EYE OF THE BEHOLDER (*Strategic Simulations/Electronic Arts*) ..... 74

Dungeon role-playing with rich 32-color screens.

### GOLD OF THE AZTECS (*US Gold*) ..... 74

Action/adventure with great graphics and sound.

### PICK 'N PILE (*UBI Soft/Electronic Arts*) ..... 75

Sometimes challenging strategy offering.

New! Redesigned and FASTER

# 50MHz 68030 POWER

Now Expandable to 32MB of 32-bit RAM!



1" High  
120MB (15ms)  
Hard Drive  
Now  
Available!

- 1 Optional 3.5" IDE/AT hard disk up to 340MB capacity (13ms).
- 2 Built-in Autobooting IDE/AT hard disk controller.

- 3 4MB to 32MB of 32-bit wide High Performance memory.
- 4 50Mhz 68030 CPU and 50Mhz 68882 Floating Point Unit.

**Our new faster and more expandable A3050 50Mhz accelerator kit will turbo-charge your Amiga 2000® beyond your wildest dreams.**

**Check out these features:**

- ✓ Uses GVP's new custom designed 4MB, 32-bit wide, SIMM32™ memory modules with state-of-the-art 4MB, 60ns, DRAMs.
- ✓ ZERO SLOT SOLUTION! Even with a full-blown 32MB, 50Mhz, A3050 kit installed in the A2000's "CPU" slot, ALL ZORRO II expansion slots are left free for unlimited future expansion!
- ✓ Exciting new 3.5" hard disk "bundles". Choose between the 1" high, 120MB (15ms) model or the incredible half-height 340MB (13ms) model.
- ✓ Converts an A2000 into the fastest Amiga in the world. There is truly NO competitive product.
- ✓ 68000 fall-back mode for timing sensitive applications (e.g. some games).
- ✓ GVP is the world's leading manufacturer of accelerator products for the Amiga.

# GVP

GVP is a trademark of Great Valley Products, Inc. Amiga and A2000 are registered trademarks of Commodore-Amiga, Inc.

GREAT VALLEY PRODUCTS INC.

600 Clark Avenue, King of Prussia, PA 19406

For more information, or for nearest dealer, call today. Dealer inquiries welcome.

Tel. (215) 337-8770 • FAX (215) 337-9922

Dealers Circle 21 on Reader Service card.

Consumers Circle 22 on Reader Service card.

STEPHEN C. ROBBINS, Publisher

DOUGLAS BARNEY, Editor-in-Chief

DANIEL SULLIVAN, Executive Editor

SWAIN PRATT, Managing Editor

BARBARA GEVERT, Senior Editor

JANINE L. JACKSON, Review Editor

LOUIS R. WALLACE, Senior Editor, Technology; Special Products Manager

LINDA BARRETT LAFLAMME, Editor, The AmigaWorld Tech Journal

TIM WALSH, Technical Editor

JOHN WOLFSKILL, Senior Writer, Technology

MARE-ANNE JARVELA, Special Products Coordinator

GENE BRAWN, JOEL HAGEN, DAVID T. McCLELLAN,

PETER OLAFSON, Contributing Editors

HOWARD G. HAPP, Art Director

LAURA JOHNSON, Assistant Art Director

ANN DILLON, Designer

ALANA KORDA, Production Supervisor

DEBRA A. DAVIES, Typographer

DANIEL HUSTON, Editorial Intern

KENNETH BLAKEMAN, National Advertising Sales Manager

MICHAEL McGOLDRICK, Sales Representative

BARBARA HOY, Sales Representative

HEATHER GUINARD, Advertising Sales Representative,

Partial pages & InfoMarket, 1-800-441-4403, 1-603-924-0100

MEREDITH BICKFORD, Advertising Coordinator

GIORGIO SALUTI, Associate Publisher, West Coast Sales, 1-415-363-5230

2421 Broadway, Suite 200, Redwood City, CA 94063

WENDIE HAINES MARRO, Marketing Director

LAURA LIVINGSTON, Marketing Coordinator

MARGOT L. SWANSON, Customer Service Representative;  
Advertising Assistant

LISA LAFLEUR, Business & Operations Manager

MARY MCCOLE, Video Sales Representative

SUSAN M. HANSHAW, Circulation Director, 1-800-365-1364

PAM WILDER, Circulation Manager

LYNN LAGASSE, Manufacturing Manager



ROGER J. MURPHY, President

NANCY GENDRON, Assistant to the President

PAUL BOULE, Vice President/Group Publisher

JIM McBRIAN, Vice President/Group Publisher

STEPHEN C. ROBBINS, Vice President/Group Publisher

DENNIS S. CHRISTENSEN, Vice President of Manufacturing/Operations

BONNIE WELSH CARROLL, Vice President, Circulation & Planning

JEFFREY D. DETRAY, Director of Technology Research

LINDA RUTH, Single Copy Sales Director

DEBBIE WALSH, Newsstand Promotion Manager

WILLIAM M. BOYER, Director of Credit Sales & Collections

DOREEN MEANS, Systems Coordinator

AmigaWorld (ISSN 0883-2390) is an independent journal not connected with Commodore Business Machines, Inc. AmigaWorld is published monthly by TechMedia Publishing, Inc., an IDG Company, 80 Elm St., Peterborough, NH 03458. U.S. subscription rate is \$29.97, one year; \$46.00, two years; \$64.00, three years. Canada \$38.97 (U.S. funds), one year only. Mexico \$38.97, Foreign Surface \$49.97, Foreign Airmail \$84.97 (prepayment is required on Foreign Surface and Airmail subscriptions in U.S. funds drawn on U.S. bank). All foreign rates are one-year only. Second-class postage paid at Peterborough, NH, and at additional mailing offices. Phone: 603-924-0100. Entire contents copyright 1991 by TechMedia Publishing, Inc. No part of this publication may be printed or otherwise reproduced without written permission from the publisher. Postmaster: Send address changes to AmigaWorld, Subscription Services, PO Box 58804, Boulder, CO 80322-8804. Nationally distributed by Kable News Co., AmigaWorld makes every effort to assure the accuracy of articles, listings and circuits published in the magazine. AmigaWorld assumes no responsibility for damages due to errors or omissions.

# Introducing the **AMIGA® 500 FITNESS PLAN**

GVP's New Series II™ A500HD8+ Puts A2000® Computing  
Power and Punch into Your Amiga 500

**IMPACT**

Series II

By now you know that every Amiga 500 comes with that special built-in program called "Wait". Wait while your A500 loads software. Wait while you save files. Wait while you change disks. It doesn't have to be that way!

### GVP's Series II A500HD8+ Takes Off the "WAIT"

GVP's Series II A500HD8+ 40-105MB Hard Drives work like the world's fastest runners to take the "Wait" off and to get your Amiga 500 racing along at data transfer speeds of up to 52 times faster than floppy disk drives.

But getting rid of the "Wait" is just the beginning...

### GVP's Series II A500HD8+ Turns

#### Floppy Fat into HARD DRIVIN' Muscle

Because the Series II A500HD8+ uses the same custom VLSI and **FAASTROM™** technologies of its powerful cousins – Series II A2000 SCSI + RAM – you get more than an amazingly fast hard drive. You get the storage space of 45 to 136 floppy disks, depending upon the model you choose.

#### You also get Series II's:

- ✓ Exclusive Game (Hard Disk disable) Switch for Full Games Compatibility
- ✓ A2000 DMA Data Transfer Speeds.
- ✓ FAST RAM expansion with up to 8MB of SIMM-Based Internal RAM Expansion
- ✓ "Mini-Slot" Access to All A500 Expansion Bus Signals for future expansion.
- ✓ External SCSI Port for adding up to 7 SCSI Devices
- ✓ Internal Fan for Cool, Reliable Operation
- ✓ External Mounting to Maintain Your Original Commodore Factory Warranty
- ✓ **FREE Dedicated Universal Input Power Supply.** Insures full compliance with Commodore's A500 power limitation.
- ✓ One-Year GVP Factory Warranty.

### GVP's Series II A500HD8+ Keeps Your Amiga 500's Sleek Good Looks

GVP knows that no fitness plan is complete unless it keeps your system looking great. That's why your Series II A500HD8+ matches your Amiga 500's good looks line-for-line, curve-for-curve.

So get a GVP Series II A500HD8+ hard drive for your Amiga 500. Lose the "Wait" and Gain the Muscle.



#### Important A500HD8+ Body-Builders

- 1 Game Switch
- 2 Hard Disk Drive
- 3 External SCSI Port
- 4 Free Power Supply
- 5 "Mini-Slot": for future expansion
- 6 Internal RAM Expansion: up to 8MB

Series II, FAAASTROM and GVP are trademarks of Great Valley Products Inc. Amiga, A500 and A2000 are registered trademarks of Commodore-Amiga, Inc.

**GVP**

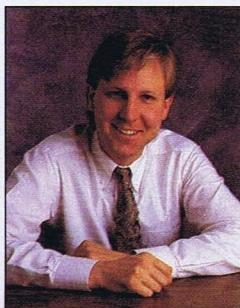
GREAT VALLEY PRODUCTS INC.  
600 Clark Avenue, King of Prussia, PA 19406

For more information, or for nearest dealer, call today. Dealer inquiries welcome.

Tel. (215) 337-8770 • FAX (215) 337-9922

Dealers Circle 27 on Reader Service card.

Consumers Circle 28 on Reader Service card.



# CHIEF CONCERNS

*Getting what you want.*

EVERY YEAR OUR advertising department willingly coughs up a bunch of dough to survey our readers. Since their job is to sell, they are mostly hot on nuts and bolts stuff like what you own, what you plan to buy, and how much money you have.

At about the same time, the editorial staff anted up for another survey. Since we're not allowed to sell anything, we only need to know what you love or hate about the magazine. And believe me, we hear plenty! Between the two surveys, we end up with a decent idea of what Amiga users want from *Amiga-World* and from developers.

In one part of the sales survey, people were asked to describe things they want developed. Some of their requests were kooky, others quite broad, many highly specific, and a few I just couldn't understand.

As you might expect, lots of readers wanted to have more of the staples: 2-D, 3-D, music, multimedia, and video software. This stuff is sorta like women and booze to a Kennedy. Some results were less expected, such as despairing wails about the huge void in the area of scientific software.

Other desires are as follows, in no particular order (with lame editorial comments in parentheses):

- Make everything more user friendly. (As long as it keeps its hands to itself.)
- Games specific to Amiga. (Here, exploitation is a good thing.)
- Built-in 24-bit graphics. (Very cool idea, but which one?)
- PRODIGY access. (So we can also waste money buying stupid products by modem.)
- Model railroad simulator, plus a layout planner and database. (It'll sell by the dozen.)
- Guru-free operating systems. (Right after Andrew Dice Clay marries Gloria Steinem.)

- Jeopardy. (Then we can all feel stupider than Alex Trebek.)
- Script-writing software. (So more of us can suffer the fate of rejection.)
- Diagnostic software. (My 500's fallen, and it can't get up.)
- A port of Microsoft Windows 3.0. (Guaranteed to slow down the fastest Amiga.)
- Software to help in writing stories. (Just keep it away from annoying overachievers like Stephen King and James Michener, okay?)
- Space technology software. (Did Arthur C. Clarke get a survey?)
- Sewing and knitting patterns on disk. (A darn good idea.)
- Genealogical programs. (Able to track Shirley MacLaine's previous lives?)
- Telephone tone-activated interface for remote programming of a VCR. (You'll never miss Bryant Gumbel again.)
- Multimedia word processing. (Slaps you upside for grammatical errors.)
- Home finance. (Can I really afford this home-finance software?)

There were a number of gripes, one of the biggest being the quality of our productivity software. One user put it this way: "How about a package that contains a word processor/database/spreadsheet that a 'normal' person could use?" In fact, the two products users wanted ported the most were Microsoft Excel and Lotus 1-2-3. And overall, the most requested applications were Business and Financial.

We also learned what you think of us. For instance, only 2.8% threw *Amiga-World* away after reading, and the article found most useful or interesting in the past 12 months was "Welcome to a New Generation" (June '90), which broke the story of the A3000. We're not sure what percent threw this one away.

Although we seem to provide a good mix of applications coverage, and are about as technical as the majority would like, we're not perfect. According to readers, a few areas that need more at-

tention are: the A1000, how other people use the Amiga, education, and news.

Sorry game haters, but entertainment still tops people's shopping lists. Maybe that's why one person said, "I was meaning to get serious with my Amiga, but I'm having so much fun that I put that idea on hold."

## STRIKE ME, MATE!

Words are strange creatures. When spoken, they have emphasis and inflection. Written words, however, are inert, completely subject to interpretation, and as a result are quite often misconstrued. That is why editors must take extra care to craft words so the real message is conveyed.

Two recent items had a couple of readers ready to, as they say in Australia, strike me pink. The first was the description of a bomb that was sent over Iraq, dedicated to yours truly. This was mentioned in the context of lots of "interesting" things that happen as a result of this job.

But as with any war, there is also great human toll that includes innocents and participants alike. Thanks to reader Marthe Arends for highlighting the latter point.

We also ran a letter, published verbatim, from Jury Vladimirov of Moscow. At first, we considered correcting the grammar and spelling, but the more we looked at it, the more the sense of its speaking from another culture came through in the use, or misuse, of the language. That was the intent. The interpretation from at least one reader was that we were poking fun at Jury. Hey, pal, we're big fans of anyone who writes us—especially all the way from Moscow, in our language.

YOUR WISH IS OUR COMMAND!...

# If you wish to enhance your Amiga 2000® with **MORE MEMORY, a HARD DRIVE, or BOTH** wish no more—GVP has the solution for you.

**IMPACT**

**Series II**

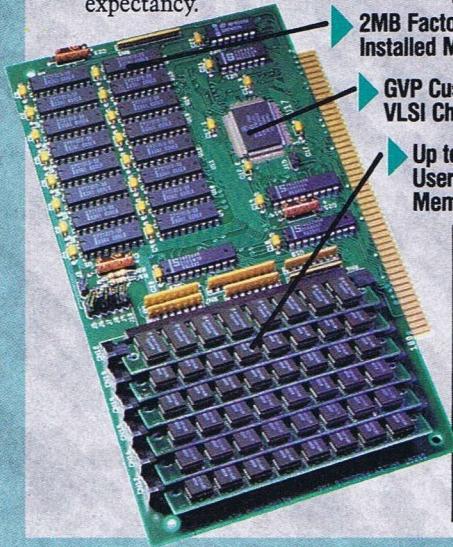
**Choose GVP's Series II  
RAM Expansion Board,  
SCSI Hard Drive  
Controller or SCSI+RAM  
Hard Disk Card. Realize the  
potential of configuring your  
perfect solution without any need  
for compromise!**

### ► RAM Expansion

**SII A2000-RAM8/2:** The smallest and most compact 8MB RAM expansion board for the A2000!

#### Features:

- ✓ 2MB of factory-installed RAM, expandable to 8MB.
- ✓ All memory fully Auto-Configured.
- ✓ Also supports 6MB configuration for maximum memory utilization for Commodore's A2088/2286 "bridgeboard" users.
- ✓ Uses easy-to-install, industry standard, SIMM memory modules. No more bent pins or incorrectly inserted DRAM chips!
- ✓ GVP's state-of-the-art VLSI technology has reduced an 8MB RAM expansion board to a "half-card"! This translates into a lower parts count and also means the highest possible reliability and life expectancy.



### ► SCSI Hard Disk Controller

#### **SII A2000 SCSI "Hard-Disk-Card":**

Specifically designed for those users who don't need memory expansion but still need maximum hard disk performance at a budget price.

#### Features:

- ✓ Incredible SCSI hard disk performance achieved through GVP's innovative new custom chip design.
- ✓ Supports virtually any SCSI device including: CD ROMs, tape drives, Bernoulli drives, removable hard drives ...
- ✓ Fully implements Commodore's Rigid Disk Block (RDB) standard as well as the new DIRECT SCSI interface standard.
- ✓ Allows direct AUTOBOOT from Fast File System Partition.
- ✓ Simplest and easiest SCSI installation in the industry.



### ► SCSI Hard Disk+RAM Expansion

#### **SII A2000-SCSI Hard Disk+RAM-Card:**

State-of-the-Art integration packs GVP's high performance SCSI controller, 8MB FAST RAM expansion and a 3.5" hard drive into a SINGLE A2000 EXPANSION SLOT!

#### Features:

- ✓ GVP's new custom chip design provides DMA performance and unique direct dual port memory access to FAST RAM, eliminating typical DMA side effects under heavy graphics load.
- ✓ Easy-to-install SIMM memory modules allow flexible memory configurations for Zero through 8MB. Supports 6MB FAST RAM configuration for BridgeBoard users.
- ✓ Supports virtually any SCSI device.
- ✓ Allows direct AUTOBOOT from Fast File System Partition.
- ✓ Simplest and easiest SCSI installation in the industry.



**GVP**

GREAT VALLEY PRODUCTS INC.  
600 Clark Avenue, King of Prussia, PA 19406

Series II, and GVP are trademarks of Great Valley Products Inc.  
Amiga and Amiga 2000 are registered trademarks of Commodore-Amiga, Inc.

Dealers Circle 29 on Reader Service card.

For more information, or for nearest dealer, call today. Dealer inquiries welcome.

Tel. (215) 337-8770 • FAX (215) 337-9922

Consumers Circle 30 on Reader Service card.

# OVERSCAN

**News, New Products and Networks**

## SUMMER CES: HOT ON THE OUTSIDE, COOL WITHIN

CHICAGO—Air-conditioned McCormick Place was a comfy retreat from steamy city heat as it hosted the 1991 Summer Consumer Electronics Show in June. Commodore commanded a powerful presence, but not in the computer area. Rather, CBM (RS# 117) set up in the home entertainment/audio/video area, amid such electronic giants as Toshiba, Sharp, and Panasonic. Hourly presentations and a roving camera crew from CNN lent a serious, business-like atmosphere to the Commodore arena.

The A690 plug-into-the-side-of-your-A500 CD-ROM drive displayed soon-to-

be released CDTV titles. Apparently, most CDTV developers had some form of representation in the crowded Commodore booth, where they demonstrated their respective titles in various stages of development. Among the most impressive of these were **The Guinness CDTV Disc of Records** from Commodore's own **CDTV Publishing**. (RS# 118.)

Specialty computer-and-software bundles were also on display. **The Amiga 500 Deluxe Pack** (\$699), the "premium home system," proved to be a one-meg A500 packaged with an adapter that lets you use your television as a monitor. The

package also includes seven rather time-worn programs: The Disk Company's KindWords 2.0 word processor, Maxi-Plan Plus spreadsheet, InfoFile database manager, and Fusion Paint graphics program, plus Deluxe Music Construction Set (Electronic Arts) and two games—Ports of Call (The Disk Company) and Zany Golf (Electronic Arts).

For those wishing less standard equipment, CBM offers the **A500 Discovery Pack** (\$599), this time a one-half-meg machine that is accompanied by the TV adapter, KindWords 2.0, and Ports of Call, but with the elderly Electronic ►

## ART FOR THE ARTIST'S SAKE

The 19th-century artist George Inness was known for landscapes. So is **Scape-Maker**, new from **MegageM**. The software (\$29.95) converts any IFF image to a landscape (DEM, or Digital Elevation Map) file for 3-D rendering in Virtual Reality's Vista and Vista Professional programs. ScapeMaker accepts all resolutions, in both NTSC and PAL standards. (RS# 107.)

Unlike Inness, award-winning Amiga artist Louis Markoya is known for pixelized 3-D scenes. But that's not all Lou has to his credit. Now comes his first software offering, **Map Master** from **Computer Imagery**, in versions for use with NewTek's LightWave 3D and Impulse's Imagine. The menu-driven Map Master (priced at \$99.95 and \$69.95, respectively) promises immediate access to all the image-mapping capabilities of your 3-D renderer—with little or no learning time required. The manual offers hints on how and where to use your program's various image-mapping features, and it describes the 14 hi-res textures that are provided on two Map Master disks. (RS# 108.)

If it's IFF-24 backgrounds you want, **Screen-Maker** (\$395, **Digital Graphics Library**) fits the bill. Available in both NTSC



**MapMaster:** texture maps and how!

and PAL formats, Screen-Maker works with any 24-bit video board for the Amiga. These ready-made backgrounds consist of various textures and images fashioned into frames, panels, and so on, and can be modified for your own particular needs. (RS# 109.)

While **Microft**'s **VidGen** 2.0 (\$149.95) is different than Screen-Maker, it also fits the background bill. You supply a graphic or select one of those provided with the program, and VidGen almost instantly generates a screen full of cloned images. You can change spacing, contrast, color, depth, and so on;

add highlighting, embossing, and titling effects; scroll your background in any of eight directions; and more. VidGen supports the overscan resolutions of such programs as DeluxePaint III (Electronic Arts), the Pro Video products from Shereff Systems, and Broadcast Titler (InnoVision Technology). (RS# 110.)

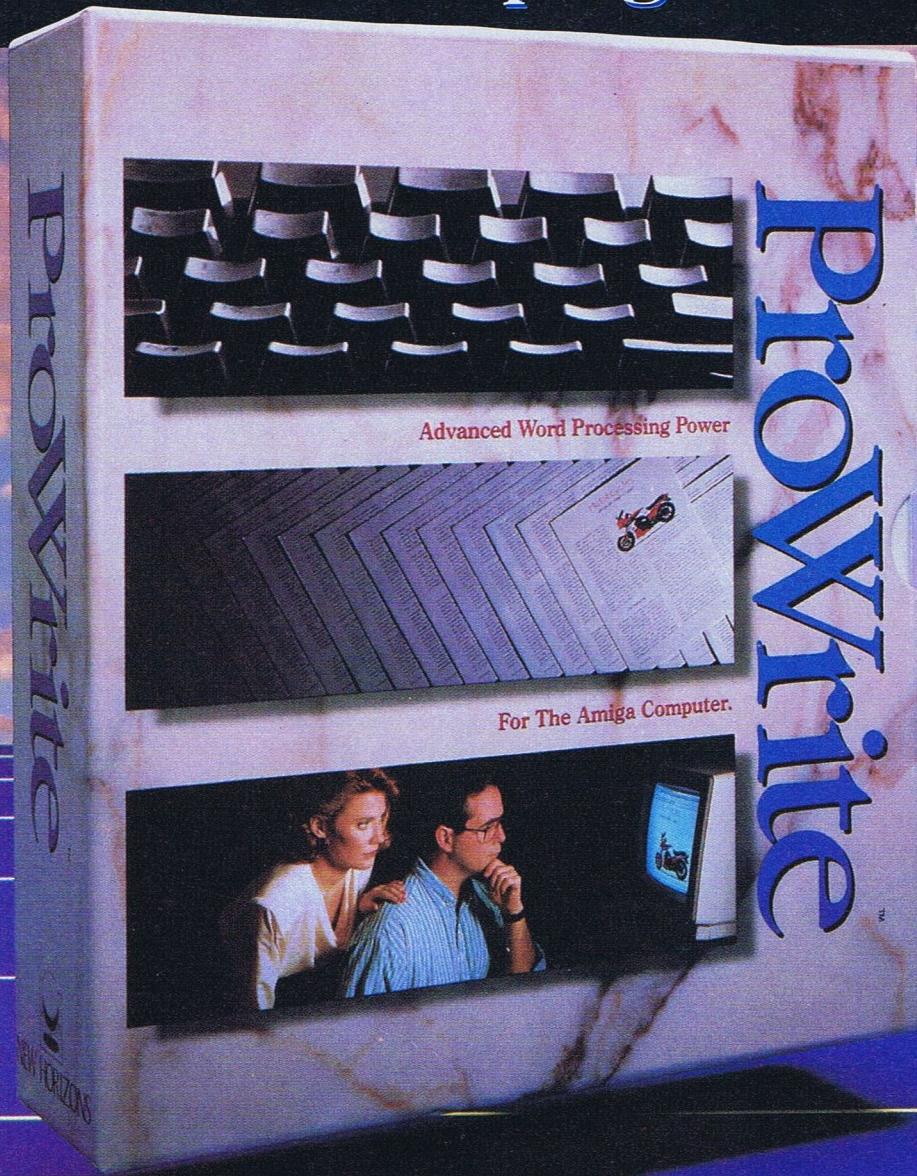
Need some text to put over your backgrounds? **Broadcast Fonts 3D** is available in three volumes, each of which is \$49.95 and provides three fonts. Crafted to support Phong shading for the best possible results, the fonts are supplied in Imagine's TDDD format, but developer **Unili Graphics** will convert them to other formats if you so request. (RS# 111.)

For animated titles, try **Blackboard** (\$35, **Blue Shadow Productions**). Designed for use with DeluxePaint III in any resolution, Blackboard fonts are appropriate not only for animations but also for single frames. (For use in animations, you should have 1.5 or 2MB of RAM.) As with Broadcast Fonts 3D, these are provided in upper- and lowercase with numbers and symbols, all of which you can manipulate individually. (RS# 112.)

—BG

For information about the vendors of products, see "Manufacturers/Distributors' Addresses" list on p. 100.

# How Does The Competition Measure Up Against ProWrite?



## They Come Up Short.

### ProWrite®. Performance That Stands Out In A Crowd.

In this highly competitive world, there is always a leader. An innovator. The one that the competition looks up to. In the world of Amiga word processors, ProWrite is that leader.

ProWrite has the high performance features you need. A 100,000 word spelling checker that can check as you type. A thesaurus with over 300,000 cross references. Multiple columns with both snaking and parallel text flow. Multiple fonts and graphics. Powerful macros. Exceptional speed.

With all this and more, ProWrite stands

head and shoulders above the competition. Which is why ProWrite is the best selling Amiga word processor. And the best choice for every Amiga owner.

Because it is always better to lead than to follow.

### Look To The Leader In Amiga Word Processing.

Like all of our products, ProWrite combines high performance, an intuitive environment, and easy to use commands. When it comes to powerful yet practical word processing, ProWrite is the target the competition shoots for.

So whatever your word processing needs, from A/V scripts, to novels, business reports, storyboards, or letters to Aunt Agnus, go straight to the top. Discover the power of ProWrite from New Horizons.



First In Personal Productivity And Creativity

New Horizons Software, Inc.  
206 Wild Basin Road, Suite 109  
Austin, Texas 78746 (512) 328-6650

ProWrite is a registered trademark of New Horizons Software, Inc.  
Amiga is a registered trademark of Commodore-Amiga, Inc.

Arts' DeluxePaint II (yes, you read that right) and Broderbund's Where in the World Is Carmen San Diego? substituted for the other software.

CBM also announced the **Amiga 2000HD Professional**—a one-meg A2000 with a 50MB autoboot hard card (\$1999). The hard disk is installed with these applications: TransWrite, Advantage, GoldFile, PageSetter II, MediaShow, Paint 2000, and Music 2000 (all from Gold Disk), and Consultron's CrossDOS.

#### PLAYERS' CLUB

Although Commodore was not represented in the more traditional floppy-based entertainment displays in McCormick North, third-party game developers were there showcasing their electronic wares as in past years. MS-DOS is seemingly the platform of choice for new game releases, but some manufacturers found enough space in their booths for Amiga demonstrations. Some also promised CD-based releases.

**Konami** had more new Amiga game titles than any other Amiga developer on the floor. The company released **Bill Elliot's NASCAR Challenge** (\$49.95), an action-packed car-racing game, and announced several others. By October, you



#### OVERHEARD

Recent weeks have brought a spate of company changes in the Amiga market.

Lake Forest Logic's product line has been acquired by Great Valley Products. If you should need tech support for the Disk Mechanic, ADAPT, or Macro Paint, phone GVP at 215/337-8770 or dial the GVP BBS at 215/337-5815.

Holographone Research has granted Centaur Software exclusive worldwide rights to its music products. Owners of the Pixound musical graphics package and the Hyperchord sequencer can upgrade to new versions through Centaur.

can expect to see **Back to the Future Part III**, **Speedball 2**, and **Team Suzuki** (each \$39.95), **Riders of Rohan**, **Space-wrecked**, and **Killing Cloud** (each \$49.95), plus **Teenage Mutant Ninja Turtles-The ArcadeGame** (no price set). (RS# 119.)

**Electronic Arts** and its affiliates were also ripe with soon-to-be-released titles, all at \$49.95. Amiga gamers can look for-

M.A.S.T. has also struck a deal with Centaur, which is now the exclusive North American distributor for M.A.S.T.'s Colorburst 24-bit video board. Centaur will provide tech support for Colorburst users and stock other popular M.A.S.T. products, including memory boards, hard-disk controllers and multipurpose cards, and floppy drives. Whatever products or information Centaur cannot provide, M.A.S.T. will.

New Horizons has gobbled up Central Coast Software (famous for such disk-utility programs as MAC-2-DOS, DOS-2-DOS, Quarterback, and Quarterback Tools) and formed a new utility division.

Precision Software, makers of the Superbase Professional and Superbase Personal database managers, has been acquired by PC supplier Software Publishing, which was apparently interested in Superbase for Microsoft Windows.

ward to **Black Crypt**, which Electronic Arts expects to be its most significant summer release. This Dungeons-and-Dragons-type adventure employs the Amiga's Extra\_HalfBrite and 64-color modes. **Birds of Prey**, a flight simulator, is rumored to offer over 40 aircraft and should be out by the time you read this. Affiliate UBI Soft promised **Pro Tennis Tour II** and **Battle** ▶



## ON-LINE SCAN

By Tim Walsh

Little more than a stone's throw from *AmigaWorld's* Peterborough, New Hampshire offices are those of *Byte* magazine and its telecommunications arm, BIX—the Byte Information Exchange. Although I am sometimes scolded for it, I have never covered BIX in this column as thoroughly as the other networks. The reason is that Amiga users typically get BIX accounts only after they've had accounts on GENie, CompuServe, or American People/Link.

BIX, the focus of this month's installment, is one of the most technically-oriented telecommunication networks for Amiga users. Unlike other nets, it lets you chat, argue, debate, and be subjected to praise or criticism by some of the most prominent Amiga developers and CATS (Commodore Applications and Technical Support) staffers.

While other networks also offer access to technical people, BIX gets the nod for the number and rapid response times of its techies.

Recently, I asked Joanne Dow, Amiga enthusiast extraordinaire and editor of BIX's Amiga Exchange, what really sets BIX apart from other networks for Amiga users. "Amiga activity is disproportionately large because of the Commodore presence and the high signal-to-noise ratio for technical questions," she stated. BIX, she explained, is the most cost-effective telecommunications solution, considering the time and money lost searching through "noise" when getting on to one of the big networks.

I know all too well how such "noise" hampers the search process, and I decided to put Joanne's claim to the test. Suppose you need a printer driver

for your new printer. How long does it take to get on line and to the drivers? I clocked the process—starting when the software autodialled and ending when I was in the Amiga area looking for a driver—at 2400 baud during prime-time hours. With GENie, the procedure took one minute, 44 seconds; CompuServe required one minute, 29 seconds; and PLink took a scant 43 seconds. BIX required 57 seconds. Although BIX was not as fast as PLink, it was significantly faster than GENie and CompuServe.

I do agree with Joanne's statement that of all the networks available to Amiga users, BIX is the most technical—even more so than USENET. If you have a problem getting hardware or software to work, Joanne says the answers you need are either already there or

readily obtainable. She has had several users comment that after days of trolling for answers on USENET or other commercial services, they turned in desperation to BIX and received accurate answers inside of a few hours.

Another great feature of BIX is its database of Amiga "how-to" reference material. In the Amiga conference area, you can find countless remedies for common maladies, and even Joanne's own discussions of how to configure two 80-track 5.25-inch CP/M-type drives as standard 3.5-inch AmigaDOS drives.

The listings and download area offers roughly 1800 freely distributable Amiga files, and, finally, *AmigaWorld* and *The AmigaWorld Tech Journal* share highly visible areas within BIX's Amiga Exchange area. This all adds up to a good source for technical information and a good way to let us know what you think of the *AmigaWorld* publications.

For more information on BIX, call the service's voice lines at 800/227-2983 or 603/924-9281.

# SUMMER SIZZLER!!!

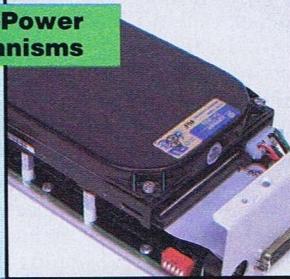
INTRODUCING THE  
EXCITING NEW

# SupraDrive™ 500XP

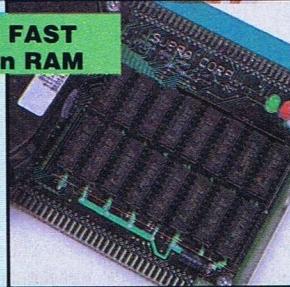
\$349<sup>95\*</sup>

20MB Drive  
1/2MB RAM

## Fast, Micro-Power Drive Mechanisms



## 1/2 - 8MB FAST Expansion RAM



## SCSI Port & Game Switch



## Easy-to-Access Option Switches



### ■ Micro-Power Drives

Extra rugged,  
20-105MB capacities

### ■ Autobooting SCSI Interface

A2000 performance  
with no DMA problems

### ■ No Noisy Fans or Cumbersome External Power

### ■ 1/2, 1, or 2MB RAM

On-Board with  
256K x 4 DRAM

### ■ 2, 4, or 8MB RAM

On-Board with  
1MB x 4 DRAM

### ■ Amiga Bus Pass-Through

### ■ External SCSI port

allows up to 7  
SCSI devices

### ■ Game Switch

lets you turn drive  
off and leave  
RAM enabled

### ■ Autoboot ON-OFF Switch

### ■ SCSI ID Selector

### ■ RAM Test Mode

### ■ Made in the U.S.A.

### ■ One Year Warranty



## THE ULTIMATE AMIGA® 500 PERIPHERAL!

With a SupraDrive 500XP™, your computing life will change forever.

You'll be able to use software that your computer simply couldn't run before, including paint, digitizing, and animation programs that need more RAM. You'll spend more time using your computer and less time waiting for it to transfer files and load programs, because the SupraDrive 500XP transfers data up to 40 times faster than floppy disk drives.

You can easily add up to 8MB RAM, additional Amiga bus peripherals (like digitizers), or SCSI peripherals (like removable media, tape backups, or add-on harddrives). And if you need help, you can count on Supra's knowledgeable, friendly technical support staff and one year warranty.

Available at your local dealer, or call:



**Supra Corporation**

1-800-727-8772

\*While supplies last

**Isle** for the third quarter. (RS# 120.)

At the nearby *Interplay* booth, I learned about the imminent release of **Battle Chess II** (\$49.95), which will be followed by **Lord of the Rings, Volume I** (\$54.95), and then by **Castles** (\$59.95) in October. Also, the original **Battle Chess** is slated for CDTV format (\$59.95). (RS# 121.)

**Psynopsis** showed the popular game **Lemmings**, now in CDTV format (\$49.99). Psynopsis also promised a hefty number of floppy releases at \$49.99 each: **Agony**, with its parallax-scrolling screens; **Atominoes**, with 60,000 levels; and **Aquaventura**, an interplanetary game scheduled for September that promises to be the company's hottest release of the year. **Leander** (\$49.99), an animated adventure game, is scheduled for third-quarter release, as are **Barbarian II** (\$44.99) and the eagerly-awaited **Shadow of the Beast III** (\$59.99). Finally, Psynopsis demonstrated **Fractal Engine**, the only nongame title I saw on the show floor. Due in mid '92, it is a landscape generator that produces impressive scenes for use in all manner of graphics applications. (RS# 122.)

**ReadySoft** has announced a Dragon's Lair-format game called **Guy Spy**, and a sequel to Space Ace dubbed **Space Ace**



You'll love **Heart of China's** graphics.

#### II: Borf's Revenge. (RS# 123.)

**Capstone Entertainment** announced **The Cardinal of the Kremlin** (\$49.95), a strategy game based on Tom Clancy's novel of the same name, and a bundle called **Big Deal** (\$59.95), which includes Trump Castle I, Chess Master 2000, and Ging King/Cribbage. Capstone also promised **Trump Castle II** (\$49.95) for gambling aficionados. (RS# 124.)

**Accolade** was on hand to announce the third-quarter release of **Jack Nicklaus' Golf** in CDTV format (\$59.95). On floppy, the company will release **Jack Nicklaus' Course Designers Clip Art Volume I** (\$24.95), **Altered Destiny** (\$59.95), a role-playing graphic adventure, and

**Stratego** (\$49.95), a computerized version of the classic board game. For the fourth quarter, Accolade also promised **Elvira II: The Jaws of Cerberus** (\$59.95), wherein you must rescue the ever-charming Elvira from all manner of mayhem. (RS# 125.)

**US Gold** announced its upcoming 3-D graphics wonder, **Cybercon III** (\$49.95), as well as **Murder!** (\$44.95), a mystery game with over three million crimes to solve. **Knights of the Crystallion** (\$59.95), with ray-traced HAM graphics, and **The Godfather** (price not yet available), based on the movie, are promised for third-quarter release. (RS# 126.)

**Dynamix** showed **Heart of China** (\$59.95), a beautifully detailed adventure game set in 1930's China. Look for **Rise of the Dragon** (\$59.95), another interactive adventure (this one based on genetic mutations) in August. Dynamix also mentioned **Red Baron** (\$59.95), a WWI flight simulator. (RS# 127.)

Although Chicago seemed hot as ever on CES weekend, the Amiga games market did not. Some companies, such as Origin Systems, are dropping the Amiga altogether and concentrating solely on the PC. Let's hope that by next year both the economy and Amiga games development will have warmed up. —TW

## NEWS PRINT

"To overcome the slowness of HP compatibility, we used a RISC (Reduced Instruction Set Computing) processor. That gives 8ppm (page-per-minute) performance to a 4ppm engine," said **Star Micronics**' marketing director Gary Bailer of the company's just-released **LaserPrinter 4 StarScript** printer. Star promotes the \$1995 black-and-white unit as the industry's lowest priced RISC-based PostScript printer.

Compatible with the Hewlett-Packard LaserJet IIP, the LaserPrinter 4 accepts IIP font cartridges. Its 50-sheet paper tray accommodates a variety of paper sizes, including labels, envelopes, and post cards, and you can add a larger paper tray as well. Along with the Intel i960 RISC microprocessor, the printer houses two megabytes of RAM (you can add four more), and it provides parallel, serial, and AppleTalk connectors, plus 35 outline fonts. (RS# 101.)

### AND COLOR!

Color PostScript output is now more affordable, too, thanks to some other arrivals. **NEC's** new **Colormate PS Model 40**, for instance, lists for \$6995. Featuring 4MB of RAM and 17 Adobe typefaces, the unit accepts letter and A4 size sheets. An upgrade kit (\$2000) provides an extra 4MB of RAM and 18 fonts on two daughterboards, as well as

accepting legal-size pages, to let graphic artists, designers, and engineers produce sophisticated graphics. (RS# 102.)

Another 300-dpi, thermal-transfer color PostScript printer with a \$6995 price tag is



### OVERHEARD

Kolff Computer Systems (KCS), the Dutch company that manufactures the Power PC Board, notified us that it never received the registration forms of American buyers from its former distributor, the now-defunct Pulsar. KCS requests that Power PC owners send their name, address, and the Phoenix Bios serial number (noted on the board's blue sticker) to Supra Corp., 7101 Supra Dr. S.W., Albany, OR 97321, Attn. Tech Support.

Supra, the new North American distributor for the board, will be ready to provide support as of September 1, and thereafter can supply you with updates. A software revision that KCS is currently working on promises support for most Amiga hard-drive interfaces.

the **ColorScript 100 Model 10p**, from **QMS**. Like the NEC Model 40, it comes with 4MB of RAM, runs on a 68020 processor, and provides four connectors: parallel, serial, AppleTalk, and a SCSI interface for downloading type and graphics from hard disk. More PostScript typefaces are standard, however—35 in all.

The 10p prints on 8½x11 paper and transparency. Depending on the type of color you want, you can use either of two ink rolls: one for brighter, more saturated colors, and another for Pantone colors. Says Neil Armentrout of QMS, "Our newest color PostScript printer (the 10p) is at the right price/performance point for business-presenters, while our higher-end products will continue to serve desktop publishers and graphic artists." Included among those "higher-end" printers is the price-reduced **ColorScript 100 Model 30i** (now \$10,995), which provides 8MB of RAM and accepts 11517 sheets. (RS# 103.) —BG

OverScan is compiled by Barbara Gefvert, Janine Jackson, and Tim Walsh. Send your news, new products, and network information to OverScan, AmigaWorld Editorial, 80 Elm St., Peterborough, NH 03458. ■

# Out of Memory?

## SupraRAM 2000

- 2, 4, 6, or 8MB FAST RAM board for Amiga® 2000 computers
- Easy to install & Easy to expand
- Uses 1MB x 1 DIP DRAM chips (120 ns. or faster)
- Zero wait states & Hidden refresh
- Four-layer board reduces noise and improves reliability
- 6MB configuration allows maximum benefit with the Amiga Bridgeboard
- Lets you run larger & more sophisticated programs
- Allows creation of large & very fast RAM disks
- Test mode & software simplify troubleshooting



## SupraRAM 500RX

- 1/2, 1, 2, 4, or 8MB FAST RAM for Amiga 500 computers
- Easily plugs onto A500 expansion port
- Amiga bus pass-through
- Easy to expand from initial configuration
- Uses 256K x 4 ZIP DRAM chips (120 ns. or faster) for 1/2, 1, & 2MB configurations; 1MB x 4 ZIPs for 2, 4, & 8 MB configurations
- Zero wait states & Hidden refresh
- Four-layer board reduces noise and improves reliability

- Lets you run larger & more sophisticated programs
- Allows creation of large & very fast RAM disks
- Test mode & software simplify troubleshooting
- Optional external power supply
- ON/OFF switch

## SupraRAM 500

- 1/2MB FAST RAM board for the Amiga 500
- Increases computer's memory to 1MB
- Battery backed-up clock/calendar remembers time & date even when your system is turned off
- Lets you run larger & more sophisticated programs
- Installs easily in A500 internal memory slot
- Comparable to Commodore A-501 board
- ON/OFF switch available

Made in the  
U.S.A.

  
**Supra Corporation**

1133 Commercial Way, Albany, OR 97321 USA • FAX: 503-926-9370 • 503-967-9075

SupraRAM 500, SupraRAM 500RX, and SupraRAM 2000 are trademarks of Supra Corporation. Amiga is a registered trademark of Commodore-Amiga, Inc.

Available at your  
local dealer, or call:

1-800-727-8772



# REVIEWS

## REMOVABLE MEDIA DRIVES

**GVP-RICOH  
IVS INFINIT 40  
NEXUS HARDPACK 44  
SUPRADRIVE REMOVABLE**

*Take the data and run.*

By Morton A. Kleverson

WHILE THE TERM removable media may make journalists a bit nervous, what removable media means to Amiga users is a lot of storage space for those prize-winning animations, highly sensitive scientific data, or as many games as an enthusiast can safely enjoy.

Hard-disk, or fixed-media, drives provide copious amounts of fast, on-line storage at a reasonable cost. Sooner or later, however, even the largest hard drives fill up. In the past, your options were somewhat limited: You could delete some of your precious programs or data, upgrade to a larger hard drive, or add a second hard drive to your system. Any of these options are temporary solutions at best, for if you have filled one hard drive, you will probably fill the second just as quickly.

By now, you have probably heard of removable-media drives—especially if you read “Bottomless Disks” (*Amiga-World*, Apr. ‘91, p. 20). These devices combine the portable aspect of floppy disks with the high-capacity storage associated with hard drives. At this time, the most affordable systems (and the subject of this review) are those based on the Syquest and Ricoh drives. All of the performance tests and operating comments on the four drives discussed here are based on version 1.3.2 of the Amiga’s operating system. I formatted all of the cartridges using the FastFileSystem.

Taken on their own merits, the Syquest and Ricoh drives both perform

about the same according to my experience. The differences among the drives reviewed here lie in how the elements of the entire system—Amiga, controller, and drive—work together. The results of testing these setups appear in the accompanying chart on page 16.

### WHAT'S IN A NAME?

When working with removable-media devices, the distinction between the physical device name and the volume, or logical, name becomes very important. The operating system defines physical device names such as df0: for a floppy drive, or RAM: for the Amiga’s memory-storage device. By contrast, you specify the physical device name for hard and removable-media drives during the formatting process. Each partition must have its own unique physical device name, which you can change only by rewriting its mountlist entry or by altering the rigid-disk blocks created by the host adapter’s installation software.

Volume names appear on the Workbench screen with accompanying icons when you insert disks in a floppy drive or when hard-drive partitions are present. You can easily change volume names with the Workbench Rename menu option or the CLI’s Relabel command. When specifying an Amiga-DOS path, the physical device name, for example DF0:c/dir, and the volume name, such as Workbench:c/dir, are frequently interchangeable. If the disk in question is not in the drive when you issue a command, your command will most likely fail.

With removable-media drives, the distinction between the physical device and the volume name is important, because version 1.3 of the Amiga’s operating system cannot distinguish removable media from floppy-disk drives. When powering up, you should

make sure there is a cartridge in the drive—even if your Amiga does not boot from it.

When working with removable media, keep in mind that booting may take a little longer than with a fixed drive, because the system has to spin up. In addition, be sure to keep an eye on the drive’s indicating light when ejecting or inserting cartridges. A blinking or steady red light means that the drive is not ready, whereas a steady green light is your signal to proceed.

### HardPack 44

The Syquest-based HardPack 44 (\$599) is the upper half of Subsystem/SCSI from *Advanced Storage Systems*. Sidewinder 250, the lower half of the system, is an Archive 250MB streaming-tape drive. This review concentrates only on the Syquest part of the system. The system is housed in a 7×5½×16-inch fan-cooled enclosure that includes a built-in power supply. The power connector, on/off switch, and a pair of Centronics-type 50-pin SCSI connectors are all located on the back panel. You must open the case in order to change the SCSI device numbers of either unit.

The front panel has its own power LED beside the indicating lights on the Syquest and the Archive. A round, six-foot SCSI cable, with a DB25 connector at the computer end and a 50-pin connector at the other end, comes with the system.

I tested HardPack 44 with the Nexus SCSI host adapter for the A2000 from Advanced Storage Systems. The Nexus SCSI file-system software automatically senses when the Syquest cartridge is removed. Formatting and setting up a Syquest cartridge is the same as for any other SCSI hard drive connected to the SCSI bus. While each Syquest cartridge should have a unique volume name, the physical device name and the parti-

For information about the vendors of products reviewed, see the “Manufacturers/Distributors’ Addresses” list on p. 100.

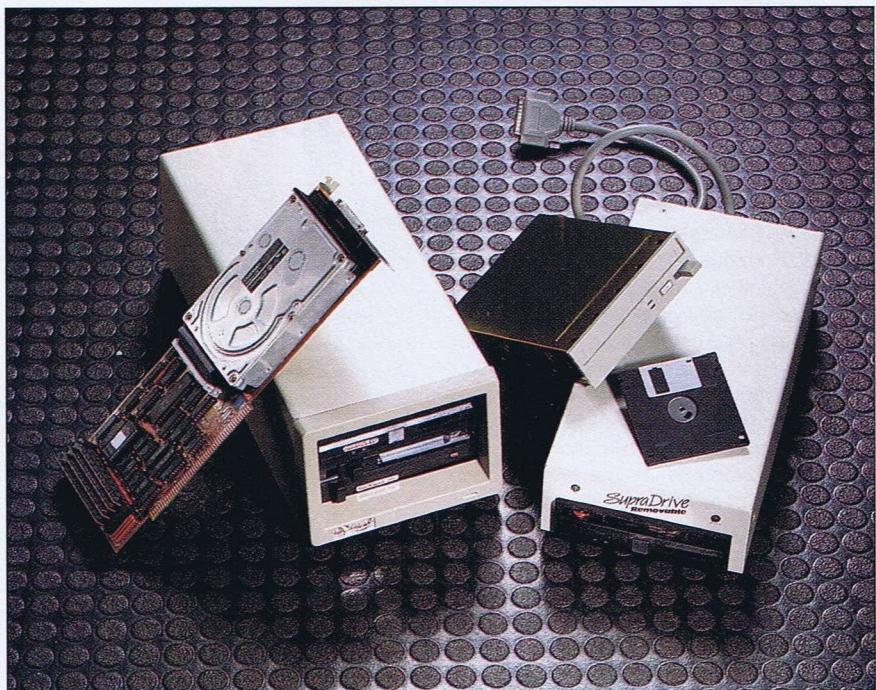
tion layout should be the same for all cartridges used with Syquest and Nexus host adapters.

## Infinit 40

The Syquest based Infinit 40 (\$899.95) is one of *Interactive Video Systems'* entries in the removable-media sweepstakes. IVS offers and supports removable media systems based on both the Ricoh and Syquest drives. The unit I tested comes in a sturdy 10x3x11-inch metal, fan-cooled enclosure with a built-in power supply. The power connector, on/off switch, and two Centronics-type 50-pin SCSI connectors with retaining catches are all on the back panel. An eight-position DIP switch makes it easy to change the SCSI device number without opening the case. The front panel has its own power LED in addition to the indicating lights on the Syquest drive.

I tested the unit with IVS's Trumpcard Professional. (Note that there are two sets of DiskSpeed test results for the Trumpcard Professional. One represents the results from the default settings only, and the other is with the read/write cache turned on and with maximum cache size.) Due to the Trumpcard's rapid SCSI-bus transfer rates, IVS recommends you use a 50-conductor flat-ribbon cable to connect its SCSI peripherals. By separating each signal line with a ground line, the 50-conductor flat-ribbon SCSI bus can provide the necessary isolation and transmission characteristics. Formatting and setting up a Syquest cartridge is the same as for any other SCSI hard drive connected to the SCSI bus.

The Trumpcard's file-system software automatically senses changes in the Syquest cartridge. Its unique system also automatically assigns physical device names during boot-up. This lets the Trumpcard recognize Syquest cartridges without the same partition arrangement. When you install a cartridge with a new partition, the Trumpcard reserves the original physical



**Subbing for the absent Infinit 40, an Advanced Storage Systems' hardcard leans on the HardPack 44, while the GVP Ricoh rests against the SupraDrive Removable.**

device name and automatically assigns it to the replacement cartridge.

When you remove a cartridge that was in the drive when you powered up, the Workbench icon is replaced with DHx:BAD. The icon reverts to normal when you replace the original cartridge. Like with floppy disks, when you insert and remove subsequent cartridges, their icons appear and disappear. The Trumpcard's dynamic allocation of physical device names makes it the most flexible SCSI host adapter for removable-media use.

## Ricoh/GVP

From *Great Valley Products*, I received a raw Ricoh RH5500 removable media drive (\$869) to install in the A2000's 5 1/4-inch drive bay, and I tested the unit with a GVP Impact Series II SCSI host adapter. The GVP SCSI file system also supports other removable-media devices, such as the Syquest, Iomega, and Bernoulli drives. The system automatically detects the cartridge's removal and changes its Workbench icon to "BAD." When you put a new disk in, it automatically recognizes it and shows you a new icon. You can use the Gvp-Mount utility to mount any cartridges not inserted at boot time.

## SupraDrive 44R

The Supradrive 44R Syquest drive (\$719.95) comes in a 7x3x14-inch metal enclosure with a built-in, fan-cooled power supply. The front panel includes both a power LED and a

drive-busy LED in addition to the indicating lights on the drive itself. The power switch is located on the back panel, which also features a single DB25 SCSI connector and a permanently attached two-foot cable, terminating in a DB25 connector, for connecting to the computer's host adapter. The back panel also has a thumb-wheel switch that makes it easy to change the SCSI device number without opening the package. I tested the system with Supra's WordSync SCSI host adapter.

Supra's SCSI file system limits removable-media disk formatting to a single partition. According to Supra, this arrangement reduces the risk of losing data. You must install the SupraDiskChange utility to recognize disk changes. SupraDiskChange can run from the startup-sequence or after you boot the system. When you eject the cartridge, its icon shows up as DHx:BUSY.

## THE CHOICE

The primary distinguishing characteristic among these prepackaged removable-media systems is in the SCSI host adapters. In fact, you can hook up any of these units to any Amiga host adapter that supports the specific removable-media drive in question. If you already own a host adapter, then you should add a compatible removable drive.

If you are starting out from square 1, consider a unified system—the advantage being that most developers will ▶

# Removable Media Speed Tests

To put our removable media subjects through the wringer, I used the venerable MKSoft DiskSpeed 3.1.

With Workbench 1.3 and its assorted files installed, I ran the first set of tests to find out how many kilobytes each system could create, read, and write in one second when using a 256K buffer.

The results appear in Table 1: The figure to the left of the slash represents results with only Workbench 1.3 running. The number to the right shows what happens in a multitasking environment. These are the results I got when I activated CPU (Central Processing Unit) stress—an option that repeatedly copies strings during disk activity—and introduced DMA (Direct Memory Access) contention, which simultaneously transfers information on the data bus.

Table 2 shows how many files the system could create, open and close, scan, delete, and seek/read in one second. As in Table 1, the first number indicates the results without DMA and CPU contention. The second figure shows you what happens with these extra demands.

In Table 3, the "real-world" tests, the first column indicates how long each system took to autoboot from a cold

format the supplied media. If you can manage the investment, removable media is a viable replacement for your overflowing hard disk.

## BODEGA BAY

*Sitting in the dock of the bay.*

By Sheldon Leemon

AS EVERY A500 owner can tell you, the A2000 is just an A500 with expansion slots. In theory, that means all you have to do to upgrade your A500 to A2000 capabilities is to add an expansion box with slots.

Unfortunately, the slot boxes we've seen in the past have fallen far short of ideal. Some were bulky cubes that, when plugged in, turned your demure A500 into a hulking, oddly shaped contraption with two external power supplies. Many had no Bridgeboard

Table 1

Removable Drive	Create	Read	Write
GVP—Ricoh	226/177	367/359	368/283
IVS Infinit 40	233/222	442/425	406/380
IVS w/read/write cache	295/277	453/433	434/413
Nexus HardPack 44	268/266	506/483	326/333
SupraDrive Removable	232/238	430/425	427/417

Table 2

Removable Drive	Create	Open/Close	Dir Scan	Delete	Seek/Read
GVP—Ricoh	6/4	13/10	51/26	8/6	193/78
IVS Infinit 40	9/8	33/25	128/91	10/8	189/125
IVS w/read/write cache	27/20	55/38	161/102	22/18	195/125
Nexus HardPack	8/7	17/15	115/81	55/47	178/117
SupraDrive	9/9	27/25	133/95	15/15	194/130

Table 3

Removable Drive	Cold Boot	New Index
GVP—Ricoh	52.7	52.7
IVS Infinit 40	43.0	48.0
IVS w/read/write cache	---	---
Nexus HardPack	43.2	48.4
SupraDrive	58.0	43.8

start with a generic Workbench 1.3 start-up-sequence. The second column shows how long it took to build a new index on

one field within a large database file using Superbase Professional 3.01 (Precision Software).

slots for IBM compatibility. Others came from small companies that could not afford to properly promote or support them. And most were only marginally compatible with existing A2000 expansion cards, working reliably with a select few cards, and not at all with others.

## WATCHING THE TIDE DRIFT AWAY

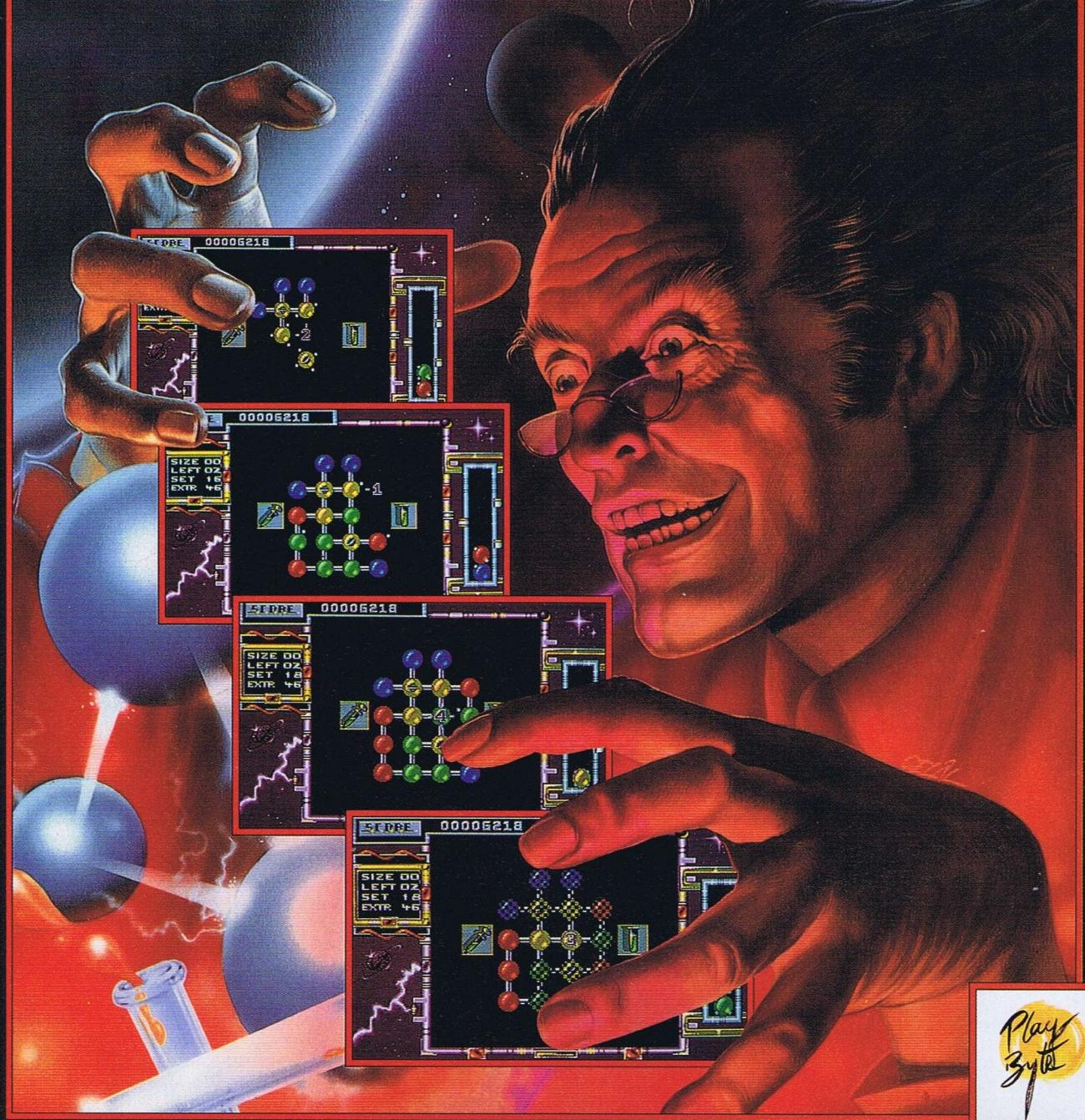
In light of the problems associated with previous expansion boxes, it's gratifying to report that *California Access* has avoided all of the pitfalls mentioned above in designing the Bodega Bay (\$429.95), the newest entry into the A500 expansion-box market. While you may not agree that trying to turn an A500 into an A2000 is a worthwhile project, you certainly cannot fault California Access for its execution of the concept. If the Bodega Bay isn't the perfect A500 expansion box, at least it is the best one we've seen so far.

Mechanically, the Bodega Bay is a large metal box that sits behind, and overhangs, the A500. Although it appears to rest on the A500 case, its free-

standing structure does not exert pressure on the computer. The top and sides of the case are metal, while the faceplate is plastic—just like the A2000. On my test unit, several of the faceplate's screw posts snapped during shipping, and the plastic cover for the expansion connector had broken off. When I called the manufacturer, California Access offered me a replacement faceplate, and told me that the company has changed the packing material to better protect the plastic parts.

Installation is simply a matter of sliding your A500 under the box until you can plug the edge-card connector on its "foot" into your A500's expansion port. Once installed, the box leaves the right side of the computer exposed, providing easy access to the disk drive. It overhangs the back of the computer by several inches, however, making it difficult to connect cables to the rear ports. For this reason, you ►

# ATOMINO



## Psygnosis and their Molecule Madness

Against the clock, you use your chemical tendencies to build molecules out of atoms provided.

And don't be surprised if the very atom you don't need will be the one you're given to use next . . . Pray for a Joker Atom!

If you don't look like a mad scientist now, you will by the time you've tackled ATOMINO!

### Up and Atom!

Screen Shots from the Amiga Version

PSYGNOSIS, 29 Saint Mary's Court, Brookline, MA 02146 Tel: (617) 731-3553 Fax: (617) 731-8379



## REVIEWS

should attach your monitor, modem, printer, mouse, and joystick cables before you install the Bodega Bay.

One cable you won't have to worry about is the one leading to your external power supply. The Bodega Bay includes a hefty (200 watt) internal supply and cable that plugs directly into the A500 power connector, allowing you to dispense with the standard power brick.

A Bodega Bay/A500 combination is a couple of inches larger than an Amiga A2000 in each dimension (even the

box the Bodega Bay comes in is larger than the A2000 box). While this gives it a somewhat bulky appearance, there really isn't much that California Access could do about it, given the size of Amiga expansion cards, and the necessity of leaving the A500 keyboard exposed.

Once attached, the Bodega Bay provides you with four Amiga 100-pin expansion slots, stacked horizontally along the left side of the box, A3000-style. The top three slots also contain in-line IBM AT-style expansion connec-

tors, making them suitable for use as Bridgeboard slots. On the opposite side lie the power supply and drive bays. Accessible from the front of the box is a full-height, 5 1/4-inch drive bay that you can use for single, full-height devices such as large hard drives and optical disks, or for two half-height 5 1/4-inch devices like hard drives, tape-backup systems, CD-ROMs, or 5 1/4-inch floppy drives for Bridgeboard use. With an adapter plate, you can also install 3 1/2-inch hard or floppy drives in this bay.

In addition to the external bays, the Bodega Bay provides room for a single internal 3 1/2-inch drive, although the cramped space makes the installation process a bit tricky (the company told me that it is reworking later versions of the box to allow easier access). The Bodega Bay even provides an extra LED on the front of the case for monitoring internal drive activity.

### POSITION IS EVERYTHING

Although the Bodega Bay provides ample room for additional drives, there are two considerations to keep in mind. First, the horizontal orientation of the slots makes it inadvisable to use a hard drive mounted on a SCSI controller card. Such an arrangement not only causes the drive to block access to one or more expansion slots, but it leaves the drive mounted upside-down, which may damage it. If you own a hardcard, however, it's a relatively easy task to detach the drive from the card, and move it to the internal bay.

The second consideration is that you cannot mount bare 3 1/2-inch floppy drives in the internal bays as additional AmigaDOS floppies. You can add more floppies to the A500 only by plugging them into the external floppy port, and for that, you need a small interface circuit board as well as the bare drive.

You can, however, install a dismantled California Access external floppy drive inside the Bodega Bay. The chassis provides holes for mounting the drive's pass-through jack and on-off switch. California Access advises against trying to install the drive without its upcoming optional mounting kit. Without it, it is possible to plug the interface board in the wrong way and destroy the drive mechanism. Califor-

*Continued on p. 80.*



### We're making waves

Real3D is a revolutionary 3D modelling, ray-tracing and animation package. Version 1.4 is now available.

Includes sophisticated solid modelling, 24 bit rendering, superior material handling, fog effects, and several mapping methods.

**R E A L 3 D™**

Real3D is marketed internationally by Activa International B.V.  
P.O. Box 23260, 1100 DT Amsterdam  
The Netherlands

Real3D's support for North America by Programs Plus & Video  
544 Queen Street, Chatham,  
Ontario N7M 2J6, Canada  
(519) 436-0988 BBS (519) 436-0140

Real3D™ is a product of realsoft ky, Finland

Circle 59 on Reader Service card.

*All photographs are of  
actual DCTV screens.*



# The Future Is Here

- ▲ Paint, digitize and display full color NTSC video graphics on any Amiga.\*
- ▲ Capture a video frame in 10 seconds from any color video camera. (Also works with still video cameras, video disk and still frame capable VCR's.)
- ▲ Display and capture full color 24 bit high resolution images.
- ▲ Convert DCTV™ images to or from any IFF display format (including HAM and 24 bit).
- ▲ Paint, digitize and conversion software are all included.
- ▲ Works with all popular 3D programs.
- ▲ Animate in full NTSC color.

**\$495**

\* Min. 1 Meg. required

DCTV™(Digital Composite Television) is a revolutionary new video display and digitizing system for the Amiga. Using the Amiga's chip memory as its frame buffer memory, DCTV™ creates a full color NTSC display with all the color and resolution of television. Sophisticated true color video paint, digitizing and image processing software are all combined into one easy to use package included with DCTV™. DCTV™ also works with all popular 3D programs to create full color animations that can be played back in real time.

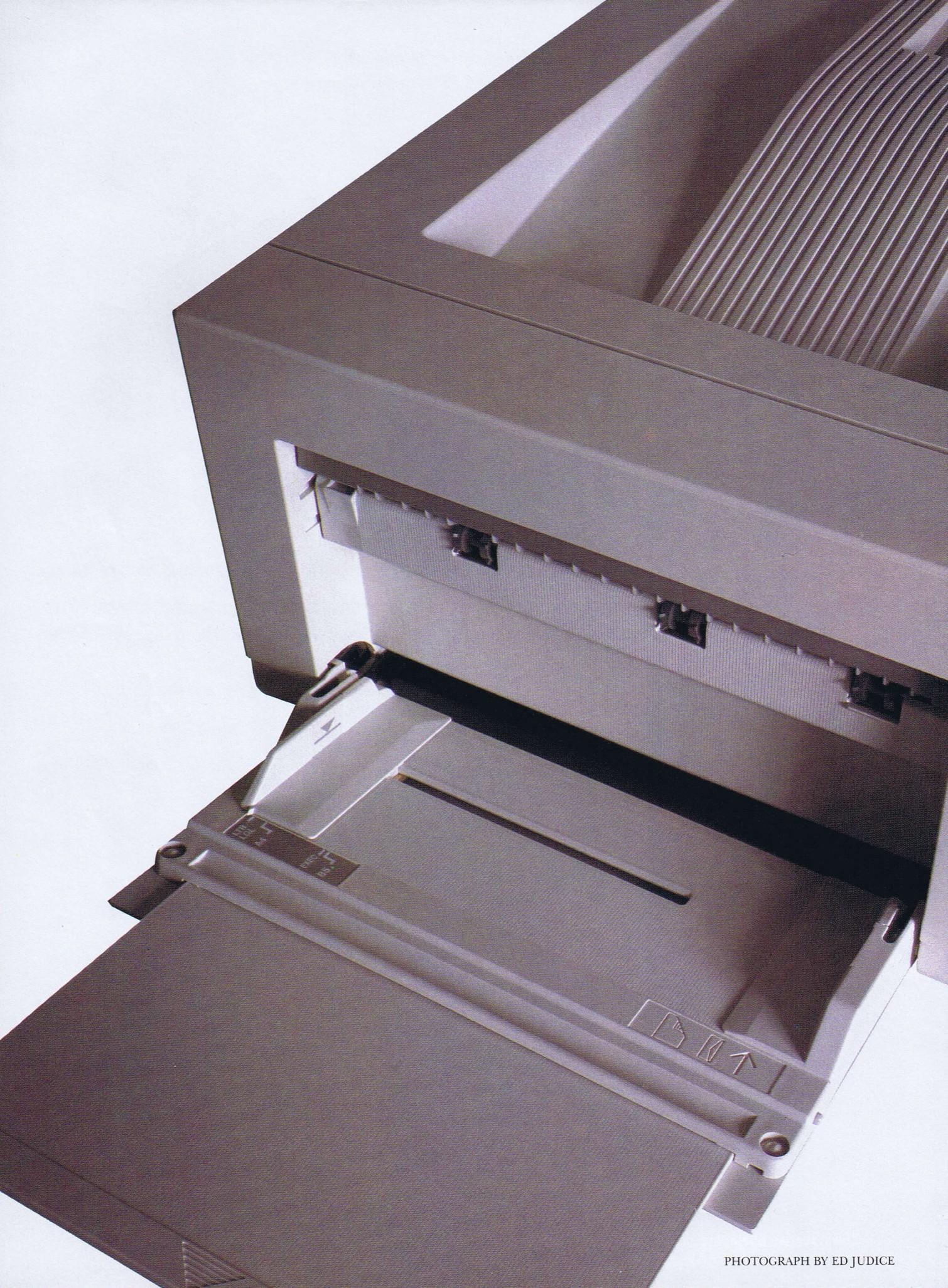
# DIGITAL.

C R E A T I O N S

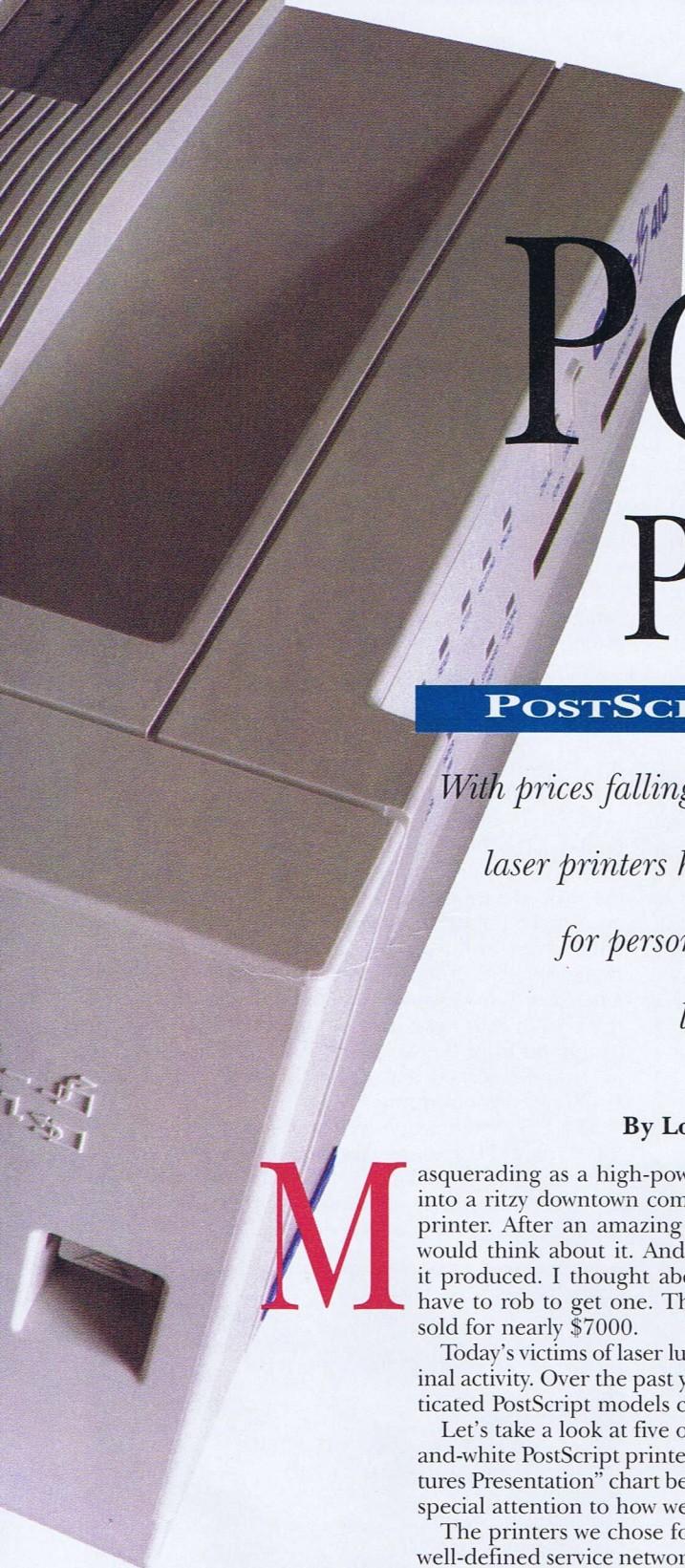
2865 Sunrise Boulevard Suite 103 Rancho Cordova CA 95742 Telephone 916/344-4825 FAX 916/635-0475

©1990 Digital Creations. Amiga is a registered trademark of Commodore Business Machines. Patents applied for.

Circle 15 on Reader Service card.



PHOTOGRAPH BY ED JUDICE



# POWER *to the* PEOPLE

## POSTSCRIPT LASER PRINTERS

*With prices falling to the \$1500-\$2000 range, PostScript laser printers have finally become affordable enough for personal use. Let's compare five of the leading low-end models.*

By Loren Lovhaug, with Frank Hudson

**M**asquerading as a high-powered business type with deep pockets, I strode confidently into a ritzy downtown computer store and requested audience with a PostScript laser printer. After an amazing demonstration, I thanked the salesperson and told her I would think about it. And think about it I did. I thought about the gorgeous pages it produced. I thought about its lightning speed. I thought about the bank I would have to rob to get one. That was five years ago, when even low-end PostScript lasers sold for nearly \$7000.

Today's victims of laser lust can get the object of their desires without resorting to criminal activity. Over the past year laser printer prices have fallen dramatically, and sophisticated PostScript models can now be had for under \$2000.

Let's take a look at five of the most popular and widely distributed sub-\$2000 black-and-white PostScript printers. (For prices and specifications on each, check out the "Features Presentation" chart below.) Let's also examine the issues surrounding them, paying special attention to how well they work with the Amiga.

The printers we chose for this article come from reputable manufacturers who have well-defined service networks. Beyond this fact and their popularity, these five have several other similarities. All come with the latest versions of Adobe Systems' PostScript page-description language and the Hewlett Packard Printer Control Language (PCL). (See the sidebar "Why PostScript?") Each also includes at least 35 resident PostScript typefaces and comes with a minimum of 1.5MB RAM.

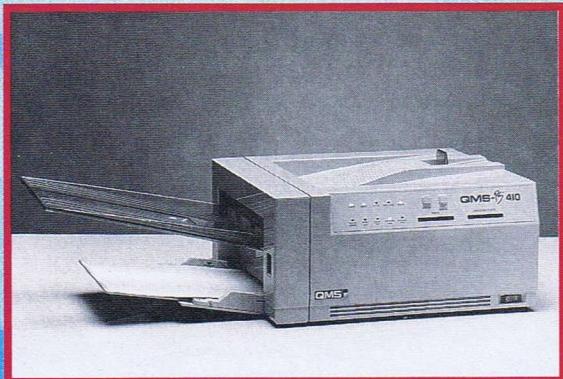
Except for the Apple Personal LaserWriter, you can connect any of these printers via parallel, serial, or AppleTalk ports (the LaserWriter omits a parallel option). Making a parallel or serial connection requires only an appropriate cable. To make an AppleTalk connection, you need an Amiga 2000 or 3000 and an AppleTalk interface card such as Progressive Peripherals' DoubleTalk or DigiFex's Interact.

The two most unexpected similarities among the printers are their output quality and their diminutive size. Unlike dot-matrix printers, which differ greatly in the quality of ►

their output, these are virtually the same in terms of output; any variance was imperceptible even with a magnifying glass. All deliver crisp, dark, flawless blacks, consistent grays, and curves as smooth as 300 dots per inch allow.

Perhaps more surprising are the bodies of the printers themselves. Laser printers have traditionally been heavy and bulky, requiring substantially more desk space than their dot-matrix cousins, but not these beauties. Each one is light and compact.

To find the differences in the printers, we looked at how easy each is to set up and use with the Amiga. We also considered the speed at which it churned out text, how well and how quickly it processed complex projects, and the difference made by a speedy microprocessor or engine. Finally, because laser printers are more expensive to operate than other printers, we considered the cost per printed page. For the results of our investigations, read on—and see the “PostScript Blitz!” test results. (*For details on how to contact the developers of products mentioned in this article, consult the “Manufacturers/Distributors’ Addresses” list on p. 100.*)



### QMS PS-410

**W**ithout its paper tray, **QMS's PS-410** is slightly larger than the unit with the smallest footprint, Texas Instruments' microLaser PS-35. Measuring only 7.5 inches in height, however, the PS-410 is only about half as high as the microLaser, so it is a better “bookshelf” printer. With the 50-page paper tray unfolded (a rather skimpy capacity compared to the other printers), the unit measures 25×13 inches.

The PS-410's initial setup is the easiest of any of the printers. You merely open the front of the machine, drop in the all-in-one drum/toner cartridge, latch the front back up, and drop down the hinged panel that serves as the paper tray. It's all neat and quick.

The 410 is the only printer in the group to feature a 68020 processor. Although the 16 MHz '020 offers advantages for such calculation-intensive work as printing structured graphics, even that calculation speed could not overcome the 410's slower four-page-per minute engine. (Three of the other printers are rated at six pages per minute or better.)

Another aspect that sets the PS-410 apart is its extensive offering of typefaces; it provides 45 PostScript faces instead of the standard 35. Of these, we were unable to access Helvetica condensed or Garamond from any Amiga applications.

Unlike the other printers, the PS-410 has no buttons

or LCD screen for switching between page-description languages or setting port preferences. Instead, the 410 employs a proprietary software technology called ESP that controls every aspect of the printer's operation. The best part of this scheme is that all three of the 410's connectors—serial, parallel, and AppleTalk—are available at all times. This means that you can hook up as many as three computers to it, each via a different port, and these computers can all send data to the printer simultaneously; ESP automatically queues up print requests. Switching between PCL and PostScript modes is also automatic; the printer identifies which page-description language is needed from the incoming data string.

ESP's no-button approach is one of the 410's strongest points, but it poses a few problems for the Amiga. While QMS supplies a menu-driven utility program, PSEExecutive, so that the Mac or MS-DOS user can toggle Wait and Sample Page settings, there is no Amiga version of the utility. It should be noted, however, that PSEExecutive is merely a convenience for sending the printer commands written in machine-independent PostScript code.

Thanks to Consultron's CrossDOS file-format conversion utility, we were able to set these parameters. We read the PostScript commands from the 3.5-inch MS-DOS version of the utility and copied them directly to the PAR: device through the CLI. CrossDOS became even more important when it came time to perform our text test, as the printer did not properly auto-sense PostScript data from Micro-Systems Software's excellence! word processor. To complete the test, we locked the printer into PostScript mode using the PostScript command from the MS-DOS disk. All other software we tested switched automatically between PCL and PostScript without drama.

The ESP system works well and makes perfect sense for Mac and PC systems. Although QMS does not provide Amiga software, it has promise if you want to share a printer with other computers—providing you are willing to take on the conversion challenge.



### OKIDATA OL840 LED PAGE PRINTER

**I**n this field of small and smaller printers, **Okidata's OL840** is still in the big-and-tall section. It measures 17×23 inches with its paper tray, and stands 8.5 inches tall. Its solid construction, heavier base, and second paper-tray option make it the most durable printer we tested.

## GETTING STARTED

## Why PostScript?

KNOWING THAT EVEN the least expensive PostScript printers cost twice as much as low-end standard lasers, you might be wondering what's so great about the PostScript option.

Today there are two kinds of laser printers on the market, grouped according to which page-description language they use. A page-description language—such as PostScript—is the set of conventions that tell a laser printer's hardware how to render and position text and graphics on a printed page. Like the Amiga's Preferences system, the idea behind page-description languages is to give applications developers a standard method for accessing a printer's capabilities while minimizing the user's need to understand printer-control intricacies.

The least expensive laser printers generally use a version of Hewlett Packard's page-description language, called Printer Control Language (PCL). Such printers are said to be HP or PCL compatible. Today, PCL-based printers come equipped with a minimum of 512K of RAM and two fonts, although many HP-compatible printers are sold with more memory and a larger complement of built-in fonts. Most PCL printers use a microprocessor in the same class as the A500's 7.16 MHz 68000.

The other popular printer-control language is Adobe Systems' PostScript. Modern PostScript laser printers usually have at least 1.5MB of RAM and 17 fully scalable typefaces. When it comes to computing power, PostScript printers generally use faster microprocessors than their PCL counterparts.

Because PostScript printers have more under the hood than do PCL units, they cost more to produce. Further, because PostScript is a more complex and powerful language than PCL, it begs for more memory and processing muscle. PCL supports only two scalable graphics primitives—namely, horizontal and vertical rule—that you can color effectively only in 5% intervals from white to black. This means that the sole way to print a complex image with PCL is to send its bit-mapped representation to the printer, a slow and disappointing process.

On the other hand, PostScript includes a rich array of graphics primitives, including bezier curves, arcs, and lines, all of which you can rotate and scale. In addition, PostScript includes an advanced, pattern-based flood-fill facility that can shade even irregularly shaped objects in .1% increments.

PostScript also surpasses PCL in the way it handles text. To appreciate PostScript's superiority in this area, it is important to understand the difference between two terms that are often confused: typeface and font. A typeface is a particular design or style of letters, numbers, and symbols, while a font is the actual set of letters, numbers, and symbols for a typeface in a specific size.

For example, the Amiga's default typeface, Topaz, is available in three sizes, each of which is a font. One Topaz font features characters eight pixels high, whereas the other two are nine and 11 pixels in height. Similarly, a PCL printer provides fonts that are specific sizes of particular typefaces.

Unlike PCL, PostScript is actually typeface-based and can build virtually any size font from typeface-outline information stored within the printer. This means that PostScript printers can produce an almost infinite number of fonts for each typeface—the only limits are your printer's RAM and its print resolution.

While the distinction between font and typeface may seem trivial at first, it is crucial. Many advertisers use the word font instead of typeface when describing the number of typefaces resident in a PostScript printer. Therefore, uninformed buyers may wrongly conclude that a PCL-based laser printer with 30 resident fonts has more text flexibility than a PostScript laser printer with 17 typefaces advertised as having 17 resident fonts.

Besides the fact that PostScript printers are superior for graphics and text handling, some practical considerations make them a better choice than PCL printers for Amiga owners. First, PostScript is a device-independent standard. The same PostScript output you send to a PostScript laser can also be sent to a professional imagesetter, such as the one that prints this magazine at 2540 dots per inch. This makes a PostScript printer a fine proofing device, even if you are going to output your pages to film via an imagesetter. Finally, although Amiga laser-printer support is somewhat weak and Preferences does not include a PostScript driver (see the sidebar "Amiga Software and Lasers"), Amiga software supports PostScript better than PCL. □

A particularly admirable feature is the 840's ability to accept additional PostScript fonts on credit-card sized ROM boards. Unfortunately, however we were unable to get any Amiga applications to recognize these fonts.

The OL840 is the only one of this bunch that is technically not a laser printer. Its imaging process actually uses an array of LED panels. We could find no difference, however, in density of blacks and sharpness of output.

The OL840's set-up process is a little more complex than average. The drum and toner units are separate,

and the toner cartridge spilled a few smudges during installation. Control of the port, the page-description languages, and the miscellaneous settings is handled by an array of soft-touch buttons on the printer's front panel. As with most of the other printers, an LCD panel indicates printer status and set-up choices. As the only eight-page-per-minute printer in this test, the 840 runs multiple-copy prints and other such tasks more quickly.

Our tests show that there is more to a printer's speed than its engine's page-per-minute rating. Still, if you intend to use your PostScript printer as a make-shift ▶

## L A S E R P R I N T E R S

photocopier to roll out multiple copies of documents, the OL840 might top your list.

Small points aside, the NEC turned in mighty fine performance figures and comes at an attractive price.



### NEC SILENTWRITER 2 MODEL 90

**I**n terms of size, **NEC's Silentwriter 2 Model 90** sits in the middle of this pack. Its irregular shape (measuring 18x25x8) makes it look somewhat like a cozy cabin with a large deck, the deck being its paper tray. The tray's ungainly length results from its ability to hold legal-size paper; most printers require you to buy an additional tray for 14-inch pages.

The tray, surprisingly, is the trickiest part of the Silentwriter's otherwise easy setup. The combined toner/drum cartridge drops in under the printer's hood, but adding the tray is a matter of finding two elusive metal pins that fit into a pair of plastic hooks. Although the assembled unit looks fragile, it has stood up well under extended use.

A small LCD window and some miniature buttons control such user-configuration settings as hardware port, page-description language, and wait preferences. If you plan to switch often between PCL and PostScript, you may quite possibly be annoyed that there is no constantly visible indication of which mode is selected, a nicely that Okidata's OL840 includes and the QMS' PS-410 does not need.

### TEXAS INSTRUMENTS MICROLASER PS-35

**T**exas Instruments' **microLaser PS-35** is the smallest (13x14x11) of the five printers, but involves the most difficult set-up procedure. It employs a three-piece consumable system, including separate toner and developer units and OPC drum (which fuses the toner). The complexity of three separate units, combined with the printer's small size and vertical orientation, means spending a few more minutes under the hood initially. Both the developer and the OPC drum have extremely long life spans, however, so once they are installed, you can forget about them for a long time.

This three-piece arrangement is somewhat deceptive. It makes the PS-35 appear to challenge the Okidata 840 as the costliest printer to operate, as the Features Presentation chart shows. Considering that both your initial developer unit and OPC drum are supplied with the printer, however, the PS-35 is considerably cheaper to operate than the others for the first 25,000 pages or so.

The PS-35 has a few unique features. Like Okidata, Texas Instruments sells credit-card size cartridges to ▶

## Features Presentation

Printer	Base Prices: List/Retail Ranges	Memory: Base/Max	Processor	Engine/Speed	Consumables Item/Copies/Price	Consumable Cost/copy (c)	Tray Capacity
QMS PS-410	\$2795/\$1850-\$2150	2MB/6MB	68020 16 MHz	Cannon LX/4ppm	OPC Drum/3500/\$99	2.8	50 sheets
Okidata OL840	\$2995/\$1850-\$2050	2MB/4MB	68000 12 MHz	Okidata/8ppm	Toner/2500/\$33 OPC Drum/15000/\$289	3.2	200 sheets
NEC Silentwriter 2 Model 90	\$2499/\$1500-\$1700	2MB/4MB	68000 16 MHz	Minolta/6ppm	OPC Drum/8000/\$240	3.0	250 sheets
TI microLaser PS-35	\$2849/\$1500-\$1700	1.5MB/4.5MB	68000 12 MHz	Sharp/6ppm	Toner/3000/\$69 Developer/25000/\$130 OPC Drum/40000/\$160	3.2	250 sheets
Apple Personal LaserWriter NT	\$2599/\$1850-\$2300	2MB/8MB	68000	Cannon LX/4ppm	OPC Drum/3500/\$99	2.8	250 sheets

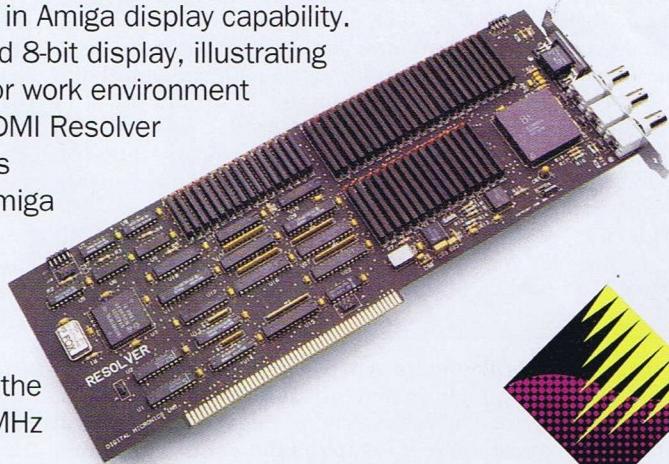
# Don't be Fooled by any other Solution. 1280x1024 Resolution.



The DMI Resolver™ graphics co-processor board offers a new dimension in Amiga display capability.

Shown above is an unretouched 8-bit display, illustrating the 1280x1024 resolution color work environment provided by the Resolver. The DMI Resolver boosts the display and graphics processing capabilities of all Amiga A2000 and A3000 series computers, under both AmigaDOS and UNIX operating systems. Not to be confused with a frame buffer or grabber, the Resolver is a lightning fast 60MHz graphics co-processor.

Whatever your application - desktop publishing, presentation graphics, animation, 3D modeling, ray tracing, rendering, CAD - let the Resolver move you into a new realm of resolution and workstation quality display.



**Digital Micronics, Inc.**

5674 El Camino Real, Suite P  
Carlsbad, CA 92008

Tel: (619) 431-8301 • FAX: (619) 931-8516  
Call for more information and the dealer nearest you.

Resolver is a trademark of Digital Micronics, Inc.  
Amiga, A2000, and A3000 are registered trademarks of Commodore-Amiga, Inc.  
UNIX is a registered trademark of AT&T

Circle 64 on Reader Service card.

## Amiga Software and Lasers

DESPITE THE AMIGA'S prowess as a graphics computer, it lags behind other systems in its support for high-quality printing using either PCL- or PostScript-based laser printers.

What are the problem areas of Amiga laser-printer support? Laser printers often come with a complement of high-quality resident typefaces. Because Preferences handles text in terms of pitch (characters per inch, measured horizontally), the HP Laser Preferences driver and most Amiga software cannot easily or accurately use most of the fonts resident in PCL printers—except for the monospaced Courier fonts. This may be adequate if you wish to use laser printers as big, fast, quiet typewriters. Most laser-printer owners, however, want proportional typefaces—even for routine business letters.

Only one nondesktop-publishing product gives you passable access to and control over resident PCL proportional fonts—WordPerfect, from WordPerfect Corporation. However, this program's use of character-based measurement rather than absolute measurement makes its support somewhat laborious.

Text control for PostScript lasers on the Amiga is somewhat better than for PCL printers. Because Commodore does not supply a PostScript printer driver, this superiority is wholly attributable to third-party software. You can find limited support for resident PostScript proportional typefaces in WordPerfect and excellence! (MicroSystems Software). ProWrite (New Horizons) needs an add-on program, ProScript (also from New Horizons).

While these programs allow you to do basic word-processing output using PostScript, none provide optimal PostScript support; nor do they let you scale typefaces to other sizes, which

makes it impossible to print in any but specific sizes of a given typeface. WordPerfect, for instance, includes a separate printer driver for each of the typefaces most commonly found in PostScript printers. Unfortunately, however, this scheme does not allow you to mix different typefaces in the same document.

Although each of these WordPerfect drivers lets you access up to eight sizes of the designated typeface, WordPerfect does not automatically adjust line leading and margins to accommodate your proportional fonts. This means you must calculate the appropriate leading and margin settings, and tell WordPerfect to adjust them in terms of lines per inch and characters per inch for each font change.

The developers of both ProScript and excellence! provide a limited number of Amiga screen fonts and font metric information for specific typeface sizes. (If you own Professional Page from Gold Disk, you can use its font metric screen-font information to add more resident font support.) Using this approach, both of these products provide a fairly good on-screen approximation of what your printed page will look like. Although you are limited to only a few sizes for each typeface, you can freely mix typefaces within a document. In addition, they save you from the tedious chore of calculating leading and margins.

Both ProScript and excellence! also provide a limited capability to print IFF graphics. ProScript, however, proved unable to print multiple-column documents, and it choked on other forms of complex formatting. While excellence! did not exhibit problems with text formatting, we did notice one disturbing anomaly. In the name of

"truly accurate on-screen display," excellence! appears to stretch the character widths of every PostScript font so that it matches the 4:3 ratio of the Amiga's screen display.

What if you need additional typefaces? The least expensive way to add them to a printer is to use "downloadable fonts." These are fonts that reside on your disk drive and are transferred to the printer's memory when needed for a print job.

Though both the PCL and PostScript worlds are well supplied with downloadable fonts from a variety of sources (including public domain), Amiga support for downloadable PCL fonts is virtually nonexistent. The PostScript situation is just slightly better; only one Amiga desktop-publishing package, PageStream (Soft-Logik), fluently accesses a wide variety of downloadable PostScript fonts, thus allowing for literally hundreds of typefaces.

Thankfully, PageStream, Saxon Publisher (Saxon Industries), and Professional Page all provide first-rate support for the PostScript language. They allow the Amiga to easily manage the features of PostScript printers, so you get precise control and layout flexibility.

Structured-drawing programs like Professional Draw (Gold Disk) and ProVector (Taliesin) equally support both types of laser printers, but for those who use art created on other systems, a variation of the PostScript printer-control language, Encapsulated PostScript (EPS), is much more useful. EPS graphics import nicely into Amiga desktop-publishing programs. Because they use PostScript instructions to draw, EPS graphics print correctly only on PostScript printers. Also, EPS graphics print faster than structured-graphics output to PCL printers. □

expand the number of PostScript typefaces available for the microLaser. Although we were not able to obtain a card for testing, we doubt that current Amiga applications can recognize them; TI employs the same technology for its cards as does Okidata.

Another twist is that TI offers this same machine in two other configurations. The microLaser is a PCL-only printer that sells for less than \$1000; the microLaser PS-17 is a 17-PostScript-typeface version that sells for about \$200 less than the PS-35. You can upgrade either of these lesser models to the level of the PS-35, although the combined cost of the upgrade boards will increase the final price of your printer

to slightly more than the price of the PS-35.

Although the PS-35 comes with a printed manual, TI provides a complete on-line help system that you can dump from the printer's ROM. Controlling the help system and every other aspect of the PS-35 are the obligatory front-panel buttons and LCD display.

The PS-35 performed well in our Text Test and Light Publishing Test, but it failed our Torture Test—probably because it comes equipped with only 1.5MB of memory as opposed to the 2MB of the other printers. Given that the elements of our Torture Test are derived from real-world projects, we recommend that you consider adding memory if you buy the PS-35. ▶



## The Evolution of Publishing: **PageStream 2.2**

AmigaWorld called PageStream 2 the "Amiga desktop publishing king of the hill." Amiga User International named it the "heavyweight champion." But we weren't satisfied. We wanted to create the most advanced publishing system for any computer, so we added a new interface, HotLinks, and a host of new features to create PageStream 2.2. HotLinks lets text, graphics and publishing applications talk to each other in real time, on one computer and across networks. So, instead of spending time importing text and graphics, you can spend more time being creative. PageStream 2.2: The evolution of publishing is complete.



**Soft-Logik Publishing Corporation**

PAGESTREAM 2.2 HOTLINKS BME PAGELINER • WE GIVE YOU THE TOOLS TO DREAM

## PostScript Blitz!

WE RAN ALL three tests on a 25 MHz A3000 with 6MB of RAM and a hard disk. Times are reported in minutes and seconds.

For the desktop-publishing Torture Test, we used a four-page document produced with PageStream 2.1 (Soft-Logik). The document combines scanned IFF images, Adobe Type 1 soft typefaces, EPS (Encapsulated PostScript) graphics, PageStream and Pro Draw (Gold Disk) structured drawings, and gray-scale objects.

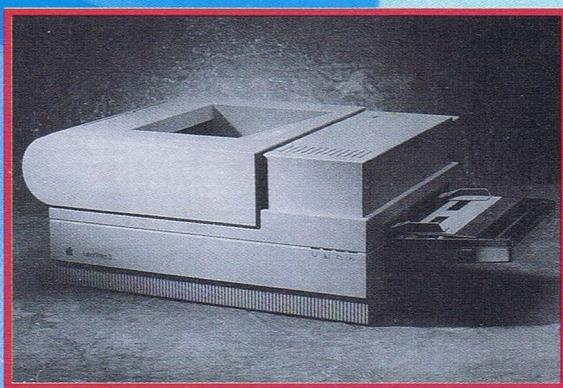
The Text Test is a 4.5-page excellence! 2.0 (Micro-Systems Software) document containing text in a mixture of resident PostScript typefaces. Finally, the Light Publishing Test was done with Professional Page 2.0 (Gold Disk), using Gold Disk's sample New Laser Times document, a two-page file with resident PostScript typefaces and Pro Draw structured graphics.

For each test, we recorded the time it took for the application to finish processing the print job (these times are

listed under the Application Free column) and also how long it took for the printer actually to generate the pages (the Page Out column). After each test, we turned off the printer to clear its memory before proceeding.

Except for tests on the Apple Personal LaserWriter NT, we ran our trials from within the applications, with the printers connected to the A3000 via the parallel port. Tests on Apple's Personal LaserWriter NT were performed using the Amiga's serial port at 9600 baud. □

	Torture Test		Text Test		Light Publishing Test	
	Application Free	Page Out	Application Free	Page Out	Application Free	Page Out
<b>QMS PS-410</b>	29:24	29:52	1:00	1:46	1:59	2:28
<b>Okidata OL840</b>	20:30	20:35	1:14	1:33	2:10	2:18
<b>NEC Silentwriter 2 Model 90</b>	18:10	18:49	1:10	1:43	1:52	2:15
<b>TI microLaser PS-35</b>	fail	fail	0:56	1:15	1:56	2:12
<b>Apple Personal LaserWriter NT</b>	39:27	40:17	3:04	3:51	4:11	4:56



APPLE PERSONAL LASERWRITER NT

**O**f the five printers we tested, *Apple's Personal LaserWriter NT* is the only one we cannot recommend to Amiga owners, primarily because it does not offer parallel communications ability, the standard method by which printers interface to the Amiga. Unless you happen to have an AppleTalk card, this means that your only choice for connecting the LaserWriter NT to your Amiga is via its serial port (or a multiserial card) at 9600 baud. This method of connection to the NT is considerably slower than the parallel connector we used to test the other printers.

Another nagging aspect of the Personal LaserWriter is the way in which you change emulation modes. On the rear of the printer is a push-wheel with seven numbered settings. There is no indication on the printer as to which setting does what, and there is no LCD panel to convey this and other status information. You are forced to consult the printer's manual in order to switch emulation modes.

The last strike against the LaserWriter NT is its easy-to-install but terribly slow four-page-per-minute engine—the same one that drags down the QMS. Add to this the fact that its advertised price is consistently higher than the others, and it is not hard to understand our dismissal of this machine.

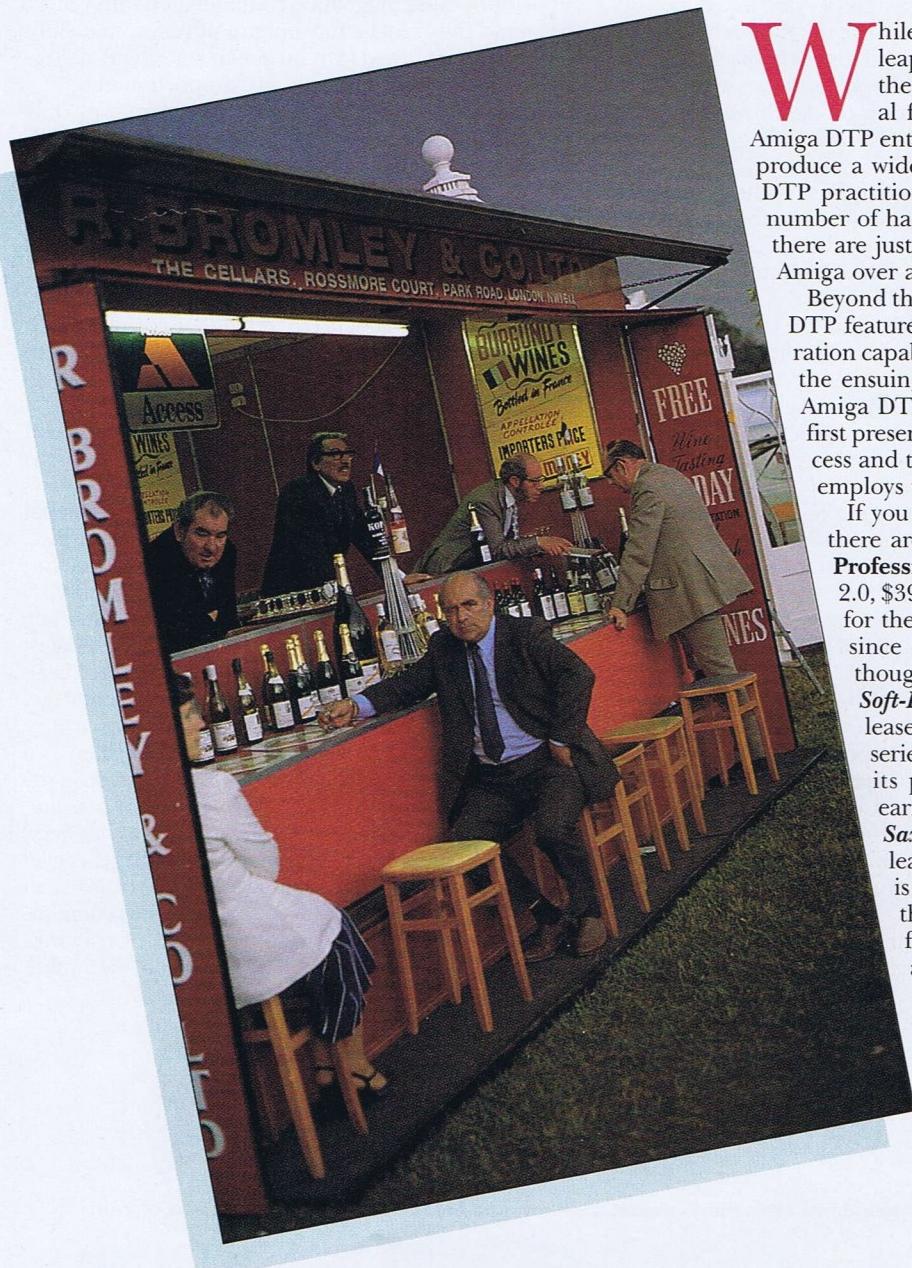
There are really four winners in this contest. The one you pick will depend on several criteria, not the least of which is price. Be sure to shop around, because prices differ greatly. Be sure also to watch for new developments in the printer industry; at press time we got word of a PostScript laser printer from Star Micronics that carries a sub-\$2000 retail price. That probably translates to a street price of \$1500 or less. (See this issue's "Overscan" for more details on the new arrival.)

Chicken Little was right...the sky is falling! ■

*Loren Lovhaug has taught and written about computers since 1984, and has been a sysop for several commercial BBSs. Frank Hudson, who writes and edits on the Amiga, works with Loren for Voyager Mindtools in Minneapolis.*

# SEPARATING THE DTP PACK

*Step up to the bar and see how three leading Amiga desktop-publishing programs handle your order when it comes to color separations.*



While "Amiga" may not be the first word that leaps to everyone's mind when you mention the term "desktop publishing," there is a loyal following (which is steadily growing) of Amiga DTP enthusiasts using a solid core of programs to produce a wide variety of publications. As a long-time DTP practitioner, I do acknowledge that there are a number of handicaps to publishing on the Amiga, but there are just as many reasons why I prefer using the Amiga over any other machine.

Beyond the basics of layout, font support, and other DTP features, key considerations are the color-separation capabilities of your program and the quality of the ensuing output. In evaluating how successfully Amiga DTP programs perform this function, I will first present an overview of the color-separation process and then examine the methods each program employs to get the job done.

If you wish to desktop publish on your Amiga, there are three programs from which to choose. **Professional Page** from *Gold Disk* (latest release 2.0, \$395) was the first serious publishing package for the Amiga, and it has been a solid program since its inception almost four years ago. Although its early versions had many problems, **Soft-Logik Publishing's PageStream** (latest release 2.1, \$299.95) has grown through a long series of updates and revisions to a point where its present features and capabilities have earned it a significant position in the market. **Saxon Industries' Saxon Publisher** (latest release 1.1, \$360; note that a new, 1.2 release is expected by the time this appears—see the "Editor's Note" at the end of this article for details) is the new kid on the block, and although its unorthodox interface is difficult to master, it is capable of some stunning color separation results.

It is not my intention here to tell you which of these programs is the finest Amiga DTP package; instead, I will try ▶

By Eyo Sama

## C O L O R S E P A R A T I O N S

to show you how to obtain the best color-separation results with the program that you have. Color-separation results, of course, must be weighed against other features and capabilities of DTP programs—and the three packages examined here are distinctly different when it comes to these areas, too. Therefore, in my conclusion I will try to put such results in the larger perspective of the overall strengths and weaknesses of each individual program. (*To contact the developers of these and other products mentioned, consult the "Manufacturers/Distributors' Addresses" list on p. 100.*)

### COLOR SEPARATION BASICS

On computer screens, color is represented as levels of red, green, and blue (RGB). Full amounts of all three colors will give you white, while zero levels for all three will produce black. This is called the additive color model. On paper, however, the subtractive (or reflective) color model applies, which is directly opposite to the additive model. With printed output on paper, color is represented by the amounts of cyan, magenta, and yellow ink (CMY) present. Unlike the RGB scheme, full amounts of the three inks will give you black (at least in theory), while no ink, of course, leaves you with a blank white page. With either model, however, equal amounts of the three colors involved will give you various levels of gray.

Color separation on a computer is the process of converting text and images defined in the RGB color model into the CMY colors used for offset printing. The cyan, magenta, and yellow components of a page of text and images are usually printed separately, each onto its own piece of negative film. In theory, 100% of cyan, magenta, and yellow ink should produce pure black; in practice, though, it does not. Because of impurities, mainly in the magenta and cyan inks, the result is a muddy brown instead of black.

Magenta ink is usually contaminated with about 50% yellow, while cyan ink is contaminated with about 30% magenta. Grays, which (again in theory) are composed of equal amounts of the three inks, can also be slightly off because of these impurities. Two processes are used to counteract this phenomenon: *under color removal* (UCR), which is used to generate a fourth (black) film, and *color correction*, which makes adjustments for impurities in the inks.

With under color removal, black ink can be used wherever all three other inks are found. For example, if you have a filled circle composed of 20% cyan, 40% magenta, and 60% yellow, there is 20% of ink common to all three; therefore, you can remove this same amount from each ink. The 20% gray that was removed is then added to the black film. The resulting separation consists of 0% cyan, 20% magenta, 40% yellow, and 20% black.

There are several additional benefits involved in this process: Black ink is less expensive than other ink (and

less ink is used, too); there is also less total ink coverage during printing (and, therefore, less chance of smearing); and it is possible to achieve higher contrast in scanned images. In practice, you do not remove the full amount of color, because this can lead to trapping and registration problems. (Registration is the alignment of each of the four pieces of film with respect to each other.) Misaligned film can cause a thin white line to appear where there is a transition between two colors. Typically, you remove only 50% of the underlying color. With 50% UCR in the example above, the resulting separation is composed of 10% cyan, 30% magenta, 50% yellow, and 10% black.

Another related process, called *gray component replacement* (GCR), allows you to vary the amount of the black that is replaced. Again using the example above, 100% GCR produces 20% gray on the black film, while 75% GCR produces 15% black.

Using color correction, it is possible to offset the impurities of the inks by removing amounts equal to the impurity. Because magenta is contaminated with yellow, you would thus reduce the amount of yellow ink; similarly, as cyan is tainted with magenta, you would also reduce the amount of magenta ink proportionately.

Of the three programs under consideration, only Professional Page allows you to manipulate the UCR/GCR settings beyond the program-specified default settings (which are 50% for UCR and 100% for GCR). In Pro Page's case, being able to decrease the GCR setting partially compensates for what I see as a problem with that program's color separations, namely, that they often result in images that seem "washed out" because the colors are not bright enough. Reducing GCR, unfortunately, also causes darker colors and blacks to appear less solid. It is best to vary the settings according to the type of images you are separating.

For structured graphics, you can even opt to switch off the UCR/GCR process altogether, which proves to be quite useful in some applications, because it then allows you to specify the black percentage directly. Professional Page does automatically color-correct for ink impurities, but here you cannot modify the default settings. You can switch the feature off, however, by typing Alt-Shift-C.

Although PageStream does not allow you to alter any of these settings beyond the defaults, it still manages to produce fairly good separations. Colors, however, are not terribly accurate and, as with Professional Page, they tend to appear somewhat washed out.

A similar situation exists with Saxon Publisher. You cannot modify its UCR/GCR default settings. It is my experience, however, that with Saxon's patent-pending color-separation system, APEX, you really do not need to. Instead, the program allows you to modify the level of impurities in the inks used by your printer. You can also modify the cyan saturation level and thus compensate for the low saturation of some batches of cyan ink. Be careful with this setting, however, for too low a value ►



When an image is color-separated, it is broken down into cyan, magenta, yellow, and black—each on its own piece of film.

S T O P

L O O K

L I S T E N

Look.

YOU WON'T BELIEVE YOUR EYES.

ALTERIMAGE VIDEO F/X:

EDIT YOUR VIDEO FOOTAGE  
INTO A HOME MOVIE MASTER-  
PIECE. CREATE IMPRESSIVE  
TITLES, SPECIAL EFFECTS,  
AND SCROLLING CREDITS  
WITH THE POWER OF  
AMIGA DESKTOP VIDEO.

ALTERIMAGE GENLOCK:

INTRODUCE YOUR AMIGA  
TO YOUR VIDEO CAMERA  
AND VCR THROUGH THIS  
SOFTWARE CONTROLLABLE  
GENLOCK. ADD SLICK  
TITLES AND GRAPHICS TO  
YOUR HOME VIDEO FOOTAGE  
BY HOOKING UP ALL OF  
YOUR VIDEO GEAR THROUGH  
THIS POWERFUL VIDEO  
CONNECTOR. GO HOLLYWOOD  
WITH YOUR AMIGA!

LISTEN.

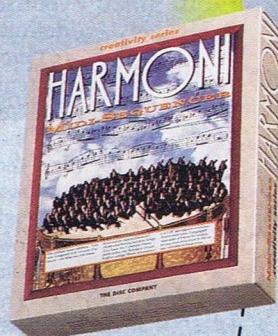
YOU WON'T BELIEVE YOUR EARS.

HARMONI: COMPOSE THE  
NEXT HIT ON THE CHARTS!

CREATE MUSICAL SEQUENCES,  
EDIT THEM, AND COMBINE  
THEM INTO SONGS.

YOU CAN BE YOUR OWN  
BAND, RECORDING  
ENGINEER, AND PRODUCER  
ALL AT ONCE.

MIDI CONNECTOR:  
PLUG INTO HIGH  
PERFORMANCE. LINK YOUR  
MIDI INSTRUMENTS AND  
AMIGA TOGETHER WITH  
THIS MULTI-PORT MIDI  
INTERFACE. HOOK UP A  
MIDI KEYBOARD, MIDI  
DRUMSET, MIDI SAX, AND  
JAM WITH YOUR FRIENDS.  
ROCK & ROLL  
WITH YOUR AMIGA!



**THE DISC COMPANY**

The Disc Company  
11040 Santa Monica Blvd., Suite 300  
Los Angeles, CA 90025  
213.478.6767 fax 213.477.8688

The Disc Company - Europe  
60, rue Marcel Dassault  
Boulogne, France 92100  
49.10.99.95 fax 47.61.17.46

## C O L O R S E P A R A T I O N S

will give you output that looks too blue. If you can work within this context, you will find that Saxon Publisher separations have bright, well-saturated colors and good contrast.

### IT'S A MATCH!...OR IS IT?

Whether you attempt to specify color on your desktop system as different levels of red, green, and blue (RGB),

color used on your page layout, which can become rather expensive when you need more than four colors. Also, scanned color photographs and other bitmapped images cannot be mechanically color separated because each image may consist of anywhere from several dozen to several million colors.

The other way of color separating Pantone colors is to define them as being "process colors," i.e., as levels of CMYK. The advantage here is that you can use as many Pantone (or other) colors as you wish—including those from scanned images—all of which can be separated onto just four pieces of film. On the surface, it would seem that there is no reason to separate in any other way, but, unfortunately, the process-color (CMYK) equivalents of Pantone inks do not all match the actual inks.

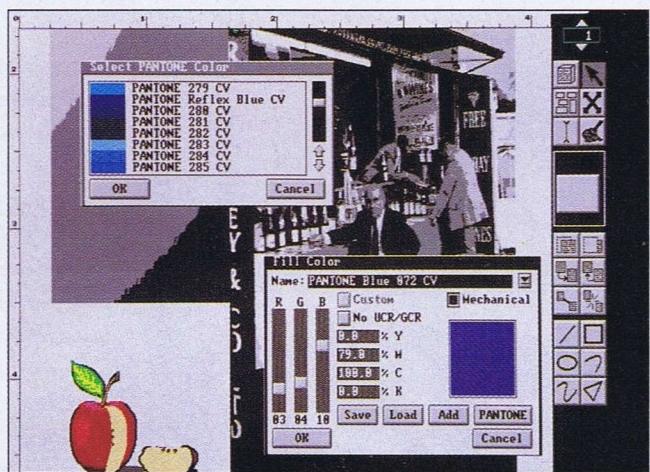
The following example will explain the reason for this. Printers create the color Pantone 374 by mixing three parts Pantone yellow ink, one part Pantone green, and twelve parts Pantone white. The process-color equivalent of Pantone 374, however, is 23% cyan, 0% magenta, 59.9% yellow, and 0% black. A circle of color printed with the actual Pantone 374 ink consists of 100% coverage of that one ink, while printing it in four-color process will produce a halftone pattern comprised of the percentages of CMYK mentioned above. Pantone 374 is a yellowish light-green color, but in process it looks very different from the color patch found in the Pantone book.

There are two things, however, that you can do to improve your final product. First, you can print a mixture of process and mechanical. For example, if you still have a copy of the 1986 Nov./Dec. issue of *AmigaWorld*, you will notice that the customary color splash under the word "World" is in silver. That particular cover was printed as a five-color separation, consisting of the four process inks, CMYK, plus the fifth color, silver ink. Using a fifth or even sixth color in this manner allows you to add colors to your layout that otherwise would be difficult or even impossible to estimate using the four process colors.

The other way to improve your final product is to use *The Pantone Process Color Imaging Guide* (Pantone Inc.), which shows the same color patches found in the Formula Guide, but which also includes next to each of the Pantone patches another patch displaying its process-color equivalent. This gives you a much better idea of what to expect when you specify colors selected from *The Pantone Color Formula Guide* or from within your publishing software.

Professional Page 2.0 is the only one of our three programs that directly supports the Pantone Matching System, and it is also the only one to adequately display color on the Amiga screen. You can display on screen any color defined by you or that is part of the built-in Pantone Library. The color-dithering routines Professional Page uses give you the appearance of thousands of on-screen colors. To print a Pantone color as its process equivalent, simply switch off the "mechanical" button for that specific color within the Professional Page Color requester.

Personally, I would like Professional Page to display the actual color as well as its dithered version when I use the Color requester, because it is sometimes difficult to visualize what the color really looks like. When you do use mechanical colors, Professional Page allows ▶



**Pro Page is the only program that supports the Pantone Matching System (PMS) color-definition system.**

or as levels of cyan, magenta, yellow, and black (CMYK), your basic problem in either case is that you hardly ever manage to get in print what you see on your screen. That is why there are a number of color-definition systems to help you.

One of the more popular is the Pantone Matching System (PMS). The PMS library consists of more than 700 numbered color inks commonly used in the printing industry. *The Pantone Color Formula Guide* (Pantone Inc.) contains sample patches of all the Pantone colors, on both coated and uncoated paper stock. This book is invaluable to any serious desktop publisher, because it allows you to better predict the colors that will appear on your final product. You will also find that just about every client who wants specific colors for his or her project will request them as numbers from the Pantone book. You can obtain the Pantone guide from most art supply stores or directly from Pantone.

You can use the Pantone colors in one of two ways: Specify the colors as being mechanical (where the printer uses the actual Pantone inks you request), or use a CMYK process-color equivalent to estimate the color of the actual Pantone ink.

When producing a mechanical (spot-color) separation, you specify text and structured graphics as being of a specific color, previously defined as being mechanical, or a percentage shade thereof. When this separation is output to film, the colors are not translated into CMYK equivalents; instead, each mechanical color (and its shades) is printed on its own individual film. The printer then uses the specified Pantone ink to print each film to paper on an offset printing press.

The benefit of using this method is that you are assured that the colors that appear on your final product are the same as those you selected from your Pantone book. On the other hand, this method requires that you create a separate piece of film for each mechanical

# SAVE IT. MOVE IT. GET IT BACK.

Valuable utility programs can save you time, money and, in the case of catastrophic errors like hard drive failure, possibly months of work.

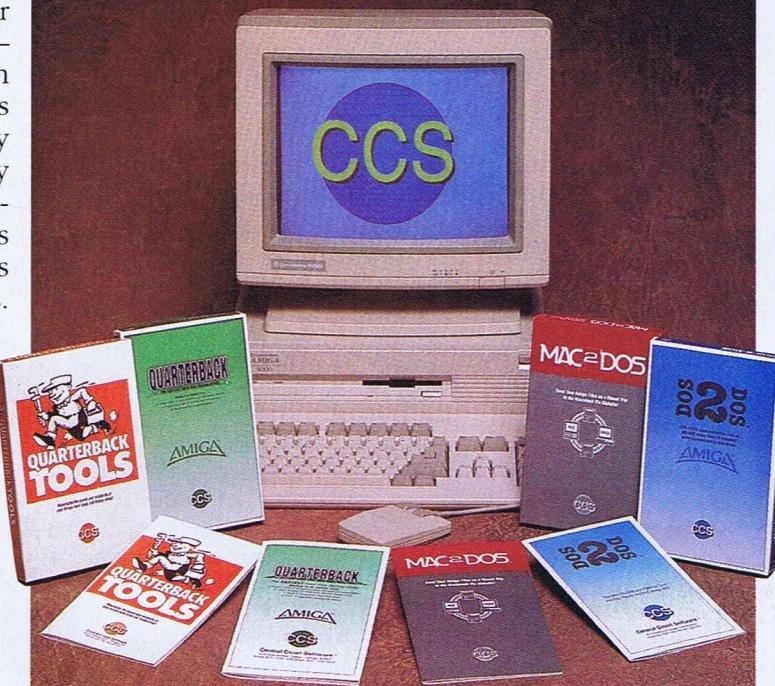
## Quarterback Tools - Recover Lost Files

Fast and easy. Reformats all types of disks – either new or old filing systems – new or old Workbench versions. Also optimizes the speed and reliability of both hard and floppy disks. Eliminates file fragmentation. Consolidates disk space. Finds and fixes corrupted directories.

## Quarterback - The Fastest Way To Back-Up

Backing-up has never been easier. Or faster. Back-up to, or restore

**Back-Up...Transfer...Retrieve  
Quickly And Easily  
With Central Coast's  
Software For The Amiga**



**Central Coast Software**  
A Division Of New Horizons Software, Inc.

206 Wild Basin Road, Suite 109, Austin, Texas 78746  
(512) 328-6650 \* Fax (512) 328-1925

Quarterback Tools, Quarterback, Dos-2-Dos and Mac-2-Dos are all trademarks of New Horizons Software, Inc.

Circle 36 on Reader Service card.

from: floppy disks, streaming tape (AmigaDOS-compatible), Inner-Connection's Bernoulli drive, or ANY AmigaDOS-compatible device.

## Mac-2-Dos & Dos-2-Dos - A Moving Experience

It's easy. Transfer MS-DOS and ATARI ST text and data files to-and-from AmigaDOS using the Amiga's own disk drive with Dos-2-Dos; and Macintosh files to-and-from your Amiga with Mac-2-Dos. Conversion options for Mac-2-Dos include ACSII, No Conversion, MacBinary, PostScript, and MacPaint to-and-from IFF file format.

## COLOR SEPARATIONS

you to define tints (or shades) of these colors merely by specifying a percentage after the color name (for instance, Pantone 374 CV 50%). The tints are then placed onto the same piece of film as the defined mechanical color.

Unfortunately, there is no direct way of doing this with the other two programs. PageStream does not directly support the Pantone system, but it does allow you to define colors in several ways, ranging from RGB and CMYK to the YIQ (Yield, Intensity, Quadrature) scheme used in video systems. For on-screen color representation, PageStream tries to match the actual colors you define to the colors used in its palette. This system is cumbersome and error prone, and the graphics you load into the program rarely appear the way they were meant to look. I hope that in a future release SoftLogik opts for on-screen color dithering.

Saxon Publisher does dither its on-screen colors, but the algorithms it uses seem to create on-screen "moiré" (interference) patterns that are sometimes disturbing. Still, this is a better system than matching a limited color palette to your actual colors as PageStream does.

### PUT IT OVER...THEN PUT IT OUT

When you are designing a page containing images (or

other elements) that spread all the way to the edge of the page, you must take into account that when a printer puts your job on press, or when he or she cuts your product to the desired size, you will be guaranteed an accuracy of only  $\pm \frac{1}{8}$  inch. For example, if you are designing an 8.5x11 flyer that will have a red background from edge to edge when printed, and you define your page size to be exactly 8.5x11, the chances are that you will see the white of your paper appearing on at least one of your page borders.

To avoid this, you must "bleed" the page, which in the example above means you must add  $\frac{1}{8}$  inch or more to all your borders by defining a page size of, say, 9.0x11.5. You then spread any graphic elements or background to the size of the enlarged page. The new page size adds a quarter of an inch to both dimensions of your page, so that even the worst of printers will have a hard time messing up this aspect of your job.

PageStream offers the most elegant method of handling bleed pages. Using the Set Page Dimensions requester, you can define the bleed size, which appears as a gray area around your page. You can now bleed graphics, text, and other objects off the page so that they do not disappear during printing or trimming. This feature is very well implemented in PageStream and makes designing and visualizing bleed pages much easier than with the other two programs.

Color separating your page layout to film requires the services of an imagesetter, and all three programs under consideration can print to such devices. There is simply not enough space in this article to convey the many tips, tricks, and tribulations involved in operating an imagesetter, so I will limit the discussion to just a few important considerations.

To ensure that your imagesetter produces good color separations, you should use a densitometer for calibration. A densitometer measures the density of your film, and some also measure halftones, thus allowing you to make sure that the 50% gray you selected in your software is actually reproduced as 50% by your imagesetter. At present, Professional Page 2.0 is the only program of the three that prints calibration bars along the sides of the color separations it produces. These not only help you calibrate your imagesetter, but they also help printers calibrate their presses for your job.

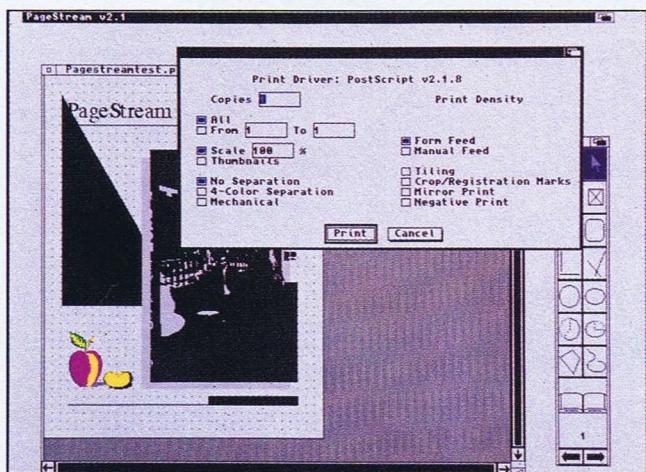
Whether you have your own imagesetter or simply use the services of an output bureau, you must set the right output specifications within your program to print correctly to various imagesetters or other output devices. The halftone dots on each of the four pieces of film of a color separation are printed at an angle different from that set for each of the other three. This is done to ensure that no disturbing interference patterns (the moiré patterns mentioned earlier) are created between the halftone dots of one film and those of another.

Angles of 105 degrees for cyan, 75 for magenta, 90 for yellow, and 45 for black are commonly used in traditional color separations for any particular line-density setting. Think of the line density of a color separation, measured in lines-per-inch (lpi), as a kind of equivalent to the resolution on a computer screen.

Although the Compugraphic 9800 imagesetter has a rated resolution of 2400 dots per inch, that is not the resolution at which your scanned images will actually print. Those 2400 dots can be only on or off; i.e., they are either black or white. Imagesetters use a grid of



**Saxon Publisher's APEX color-separation system allows you to modify the levels of impurities in the inks used by the printer.**



**PageStream's strengths include its intuitive interface and ability to perform mechanical separations on bitmapped images.**

# ATONCE

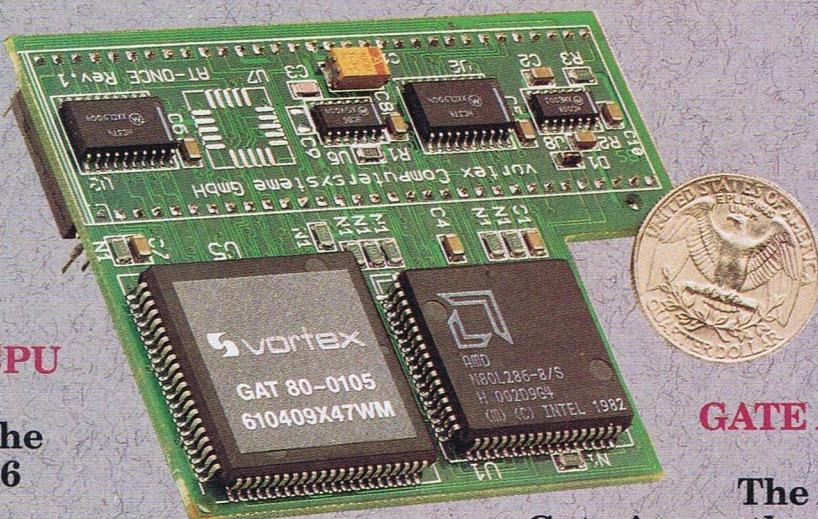
## THE ULTIMATE PC/AT EMULATOR FOR YOUR AMIGA 500/ 2000

**\$398**

Manufacturer's  
Suggested Retail Price

### 80286 CPU AND MOTOROLA 68000 CPU

ATonce is based on the standard 16 Bit 80286 AT microprocessor. Each ATonce comes complete with a high quality original Motorola 68000 CPU.



**GATE ARRAY**

The ATonce Gate Array, the ATonce Chip-Level Emulation and the ATonce AT-BIOS give the emulator a very high degree of AT compatibility.

### THE INCREDIBLE SPECIFICATIONS OF ATONCE

ATonce is the ultimate PC/AT emulator for your Amiga 500 or Amiga 2000 computer. It is developed and produced in Germany by vortex Computersysteme GmbH. ATonce gives your Amiga a complete AT emulation, that includes an AT compatible BIOS, emulation of the parallel and serial ports, sound, RTC and CMOS RAM. ATonce supports Commodore compatible hard disks, internal/ external floppy drives as well as internal/ external RAM expansions. Full 640 KB of DOS memory are available. All memory above 1 MB can be used as Extended/ Expanded Memory. The "Protected Mode" is fully integrated.

ATonce emulates the following video adapters: EGA/VGA-monochrome-graphics (as far as this is possible with an Amiga), CGA, Hercules, Olivetti and Toshiba 3100.

While running as a task within AmigaDOS, ATonce does not affect the normal operation of your Amiga and is totally transparent when not in use.

ATonce runs with the 7.2 MHz clock speed of the Amiga. The Norton SI rating is 6.1. Each ATonce is supplied with a high quality low power Motorola 68000 CPU, saving you time with the installation and providing a high degree of reliability.

Thanks to the use of a custom made Gate Array and SMT technology the ATonce board is incredibly compact and easy to fit.

In the Amiga 500 ATonce plugs directly into the socket of the 68000 CPU. In the Amiga 2000 it is plugged onto the extra adapter which is fitted in one of the Amiga slots. No soldering is required. Fitting is a 10 minute operation and full installation instructions are included in the user manual. A 3.5" Amiga floppy disk is supplied that contains the installation and emulation software and other useful tools. DOS and the adapter are not parts of the delivery. For further information or updates, please contact your local Amiga dealer or call Compuserve Mailbox # 100015,330.

## C O L O R S E P A R A T I O N S

several of these dots to represent one gray halftone dot. Therefore, in order to display up to 256 grays, the imagesetter requires at least a 16x16 dot grid pattern, in which the individual dots are either on or off depending on the gray required. With all the dots switched on, you obtain a black halftone dot; with only half of them on, you get a 50% gray dot. While the effective resolution at which scanned images are printed is then only about 150 halftone dots (150 lpi), this also is generally about the maximum line density of most offset printing presses.

For reasons that I will not go into in this article, the traditional angle and line-density (frequency) settings do not work out as well on digital systems—such as imagesetters—as they do on other output devices. To obtain the least amount of moiré patterning, therefore, the following angle/frequency settings are recommended for the two most popular imagesetters, the Compugraphic 9800 and the Linotronic 330R:

COMPUGRAPHIC CG 9800*		
AT 1200 DPI/133 LPI		
COLOR	ANGLE	FREQUENCY
Cyan	18.43	126.50
Magenta	71.57	126.50
Yellow	0.0	133.33
Black	45.0	141.42
AT 2400 DPI/160 LPI		
COLOR	ANGLE	FREQUENCY
Cyan	18.43	151.789
Magenta	71.57	151.789
Yellow	0.0	160.0
Black	45.0	169.706

LINOTRONIC L 330R**		
AT 1200 DPI/133 LPI		
COLOR	ANGLE	FREQUENCY
Cyan	18.43	133.858
Magenta	71.57	133.858
Yellow	0.0	127.0
Black	45.0	119.657
AT 2400 DPI/160 LPI		
COLOR	ANGLE	FREQUENCY
Cyan	29.74	157.53
Magenta	66.80	166.75
Yellow	0.0	158.75
Black	45.0	163.27

\* Compugraphic CG 9800 with the Emerald RIP.

\*\* Linotronic L 330R with RIP 30.

Using an imagesetter and printing on an offset press is not, of course, the only way of obtaining color output with your Amiga publishing program. There are now

several color PostScript laser printers on the market, the most popular being those from QMS and NEC. (Relatively low-cost—just under \$7000—models from both of these companies appeared only a few weeks before this article went to press: QMS' ColorScript 100 Model 10p and NEC's Colormate PS Model 40/80, both of which are described in more detail in this month's "Overscan," p. 8.) These printers are good tools for preliminary proofing of your designs before you go to press or before you get better-quality (and more expensive) proofs such as color keys or chromalins.

Although you can obtain fairly good quality with text and structured graphics by using these printers, scanned images tend to look quite shabby at the 60 lpi frequency to which you are limited. Both Professional Page and PageStream—but not Saxon Publisher—are able to print in color to these kinds of laser printers. To achieve moiré-free output from color laser printers, you must also use nonstandard angles and line densities obtainable from the printer manufacturers or from PostScript's developer, Adobe Systems.

### TEST RESULTS AND CONCLUSIONS

I took the original photograph (reproduced on the opening page of this article) that is the basis for the test separations about 14 years ago at a farm fair in Norwich, England. The slide was scanned on a Scitex drum scanner. I transferred the resulting TIFF file from the Macintosh to the Amiga with Progressive Peripheral's DoubleTalk networking card and then converted it to a 24-bit IFF file using ASDG's Art Department Professional.

I created the graduated background with AD Pro's Background load module and then saved it as an IFF24 file. The apple at the lower-left corner was originally an Adobe Illustrator '88 file that I converted to Gold Disk's Professional Draw Clip format. Unfortunately, Saxon Publisher does not support this format, so I had to convert it to an Encapsulated PostScript file, which, as you can see, Saxon was not able to print properly. I am told that an upcoming release will fix this bug. Ironically, Soft-Logik's PageStream is the only program that printed the Professional Draw Clip properly.

The table at the bottom of this page shows some vital statistics for each of the three separations.

In case you are wondering how I got the real-life shadow effect, here is how to do it: Use a gray box to create your shadow and overlay it on the background you want. When you are ready to color separate, separate only the black film. Then, before you separate the CMY, delete the gray shadow box. Now when the page is printed, the areas under the box will still be there, but they will be darker because the gray will be printed over them. Try it.

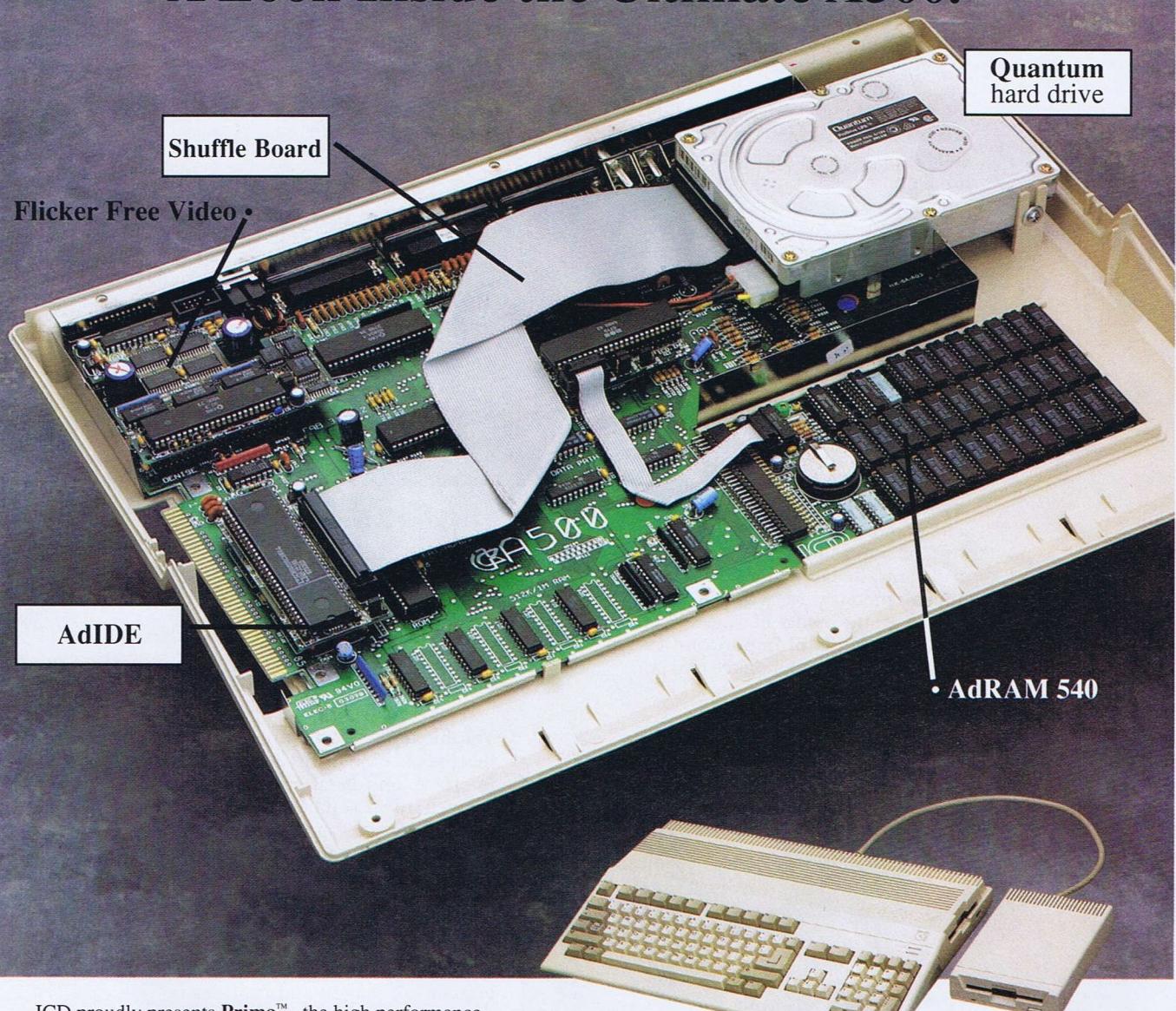
The sample separations clearly show that Saxon Publisher produces the best-quality color separations, and it does so in the least amount of time. Saying that, ▶

PROGRAM	DOCUMENT SIZE	OUTPUT TIME	FULL SCREEN REFRESH TIME	RAM	POSTSCRIPT FILE SIZE
Professional Page	32K	24 mins.	4 secs.	1.37MB	8MB
PageStream	2986K	14 mins.	66 secs.	3.80MB	8MB
Saxon Publisher	3K	12 mins.	6 secs.	*	8MB

\* Saxon Publisher uses one-half of your system RAM each time it runs.

# Prima!

## A Look Inside the Ultimate A500.



ICD proudly presents **Prima**™... the high performance, low cost hard drive for Amiga® 500 computers. **Prima** blends a large capacity, low power Quantum™ hard drive with the **AdIDE**™ host adapter for an unbeatable combination.

**Prima** replaces the internal floppy drive but includes **Shuffle Board**™ to make your external floppy drive DF0:. **Prima** features auto-booting from FastFileSystem partitions, high speed caching, auto-configuring, and A-MaxII™ support. Formatted capacities of 52 and 105 megabytes are currently available.

**Prima** comes complete with instructions, software, and all the hardware necessary for a simple, clean, no-solder installation. It does require an A500 with switching power supply, 1 megabyte of RAM, and an external floppy drive for setup and installation.

What other products would we include in the "Ultimate A500"? Of course a four megabyte **AdRAM™ 540** and **Flicker Free Video**™ with a multi-sync monitor. Why settle for less?



ICD, Incorporated  
1220 Rock Street  
Rockford, Illinois 61101  
USA (815) 968-2228 Phone (800) 373-7700 Orders (815) 968-6888 FAX

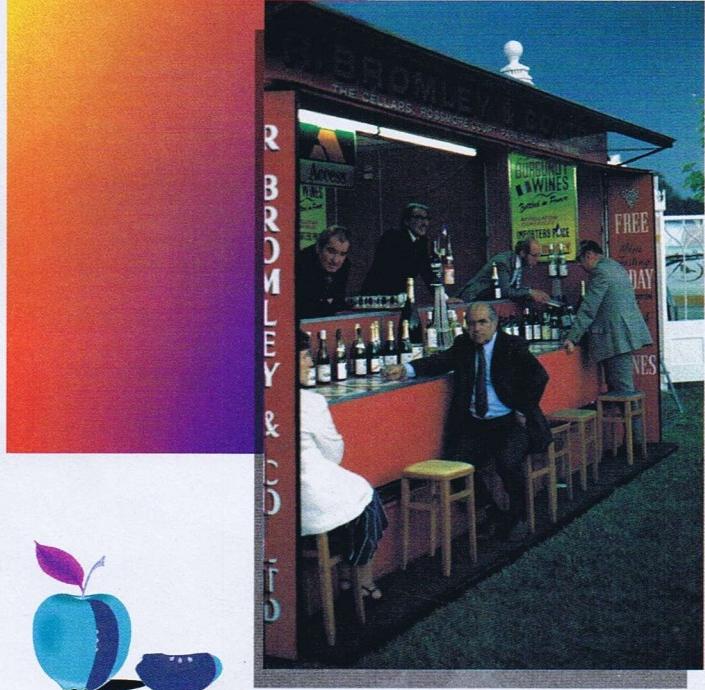
Prima, AdIDE, AdRAM, Flicker Free Video, and Shuffle Board are trademarks of ICD, Inc. Other brand and product names are registered trademarks or trademarks of their respective holders.  
Circle 31 on Reader Service card.

of course, does not mean that Saxon is necessarily the best desktop-publishing solution for the Amiga, because there are many more factors involved in successful publishing. Saxon Publisher users are stuck with a nonstandard and difficult-to-master interface, a limited selection of fonts (it uses its own format), no Pantone color support, no grouping tools, and no support for loading Professional Draw structured clip art.

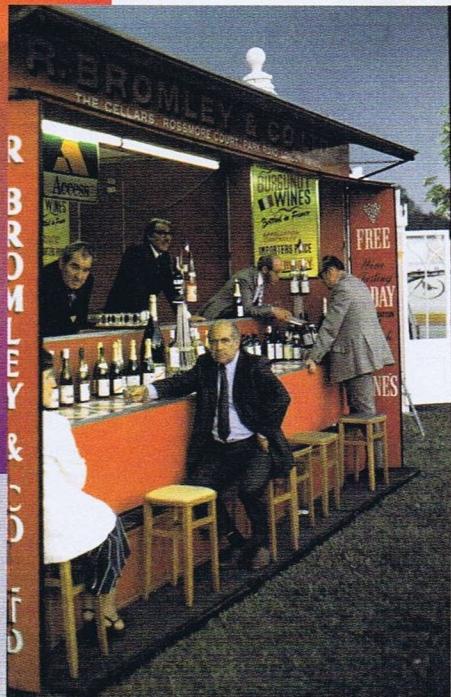
Yet, with its high-quality patent-pending APEX color-separation system and its versatility in modifying separation settings, it is definitely a necessary program for any desktop publisher who wants the best color-separated images from his or her Amiga. As stated, Saxon generates the fastest color separations, which is another important advantage for professional publishers dealing with clients who always seem to want everything "yesterday." A big drawback here, however, and one I hope the next version will remedy, is that the program allocates one-half of the Amiga's memory every time it runs.

The strong points of PageStream are its multitude of import and export modules, its abundance of typographic and graphic functions and macros, its ease of use and intuitive interface, and its ability to perform a mechanical separation on a bitmapped image. PageStream will load just about any type of text, image, or graphics format—be it Amiga, Mac, or PC.

## Saxon Publisher 1.1



## PageStream 2.1



graphic and graphic functions and macros, its ease of use and intuitive interface, and its ability to perform a mechanical separation on a bitmapped image. PageStream will load just about any type of text, image, or graphics format—be it Amiga, Mac, or PC.

On the downside, it takes forever to perform screen refreshes, offers poor-quality screen representation of bitmapped images, and provides inadequate control over the color-separation process. Another major problem, as far as high-end color work is concerned, is the way PageStream saves files and uses memory: It saves scanned images along with the file, making them unmanageably large, and it keeps them in memory while you work on your file. A fellow desktop publisher was unable to use PageStream for a project he was working on because he needed to import three 8MB scanned images and a host of structured graphics. The resulting file would have been about 27MB in size when saved to disk, requiring an Amiga with about 32MB of memory.

If you intend to create simple one- or two-color jobs, such as flyers, newsletters, and the like, then Page-

Stream may be the perfect program for you; but if you intend to create full-color ads, magazines, and other image-intensive jobs, you may find this program is sometimes unsuited to the task.

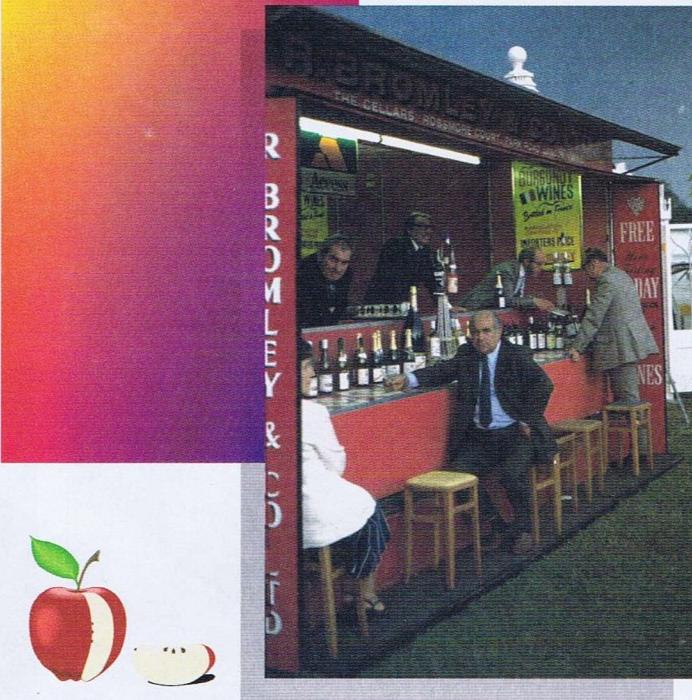
Professional Page is a solid, well-designed program with a number of useful and attractive features. Unfortunately, it does lack several important functions that are available in the other two programs. It needs to offer support for a much wider variety of import and export formats, as well as for a number of popular Amiga word processors. (For example, it does not support Excellence!, ProWrite, or Pen Pal, but it does support others that are no longer generally available.) Its built-in article editor does allow you to edit text easily within your layout, which makes it useful but not very powerful when compared with top Amiga word processors such as ProWrite 3.1.

The program also does not provide for such simple yet important tasks as being able to save your Preferences, separation specs, or Compugraphic font settings. On the upside, though, Professional Page is the only program that directly supports the Pantone Matching System—a must for professional publishers. When it comes to mechanical separations, it also has the upper hand because, unlike the other two programs, it is able to produce shades of mechanical colors.

Of the three programs, Pro Page provides the most accurate and attractive screen representations, displaying images in four shades of gray and automatically dithering colors so it appears that thousands of colors are available. It is a solid program and well suited for image-intensive color work. Although it desperately needs more features and better separation algorithms, it is still another necessary tool for color publishers.

As you can see, each of these programs has its own particular strengths and weaknesses, so until their three manufacturers get together and create a program called "Professional SaxonStream," I am afraid the best advice I can offer Amiga desktop publishers is to get all three programs and to use each for what it does best. If you cannot afford to do that, then choose the program whose strengths, as outlined in this article, coincide most closely with your needs. Rumor (unsubstantiated at press time) has it that upgraded and improved versions of all three programs are currently be-

## Professional Page 2.0



ing developed, and I for one am very eager to find out what each one has to offer next.

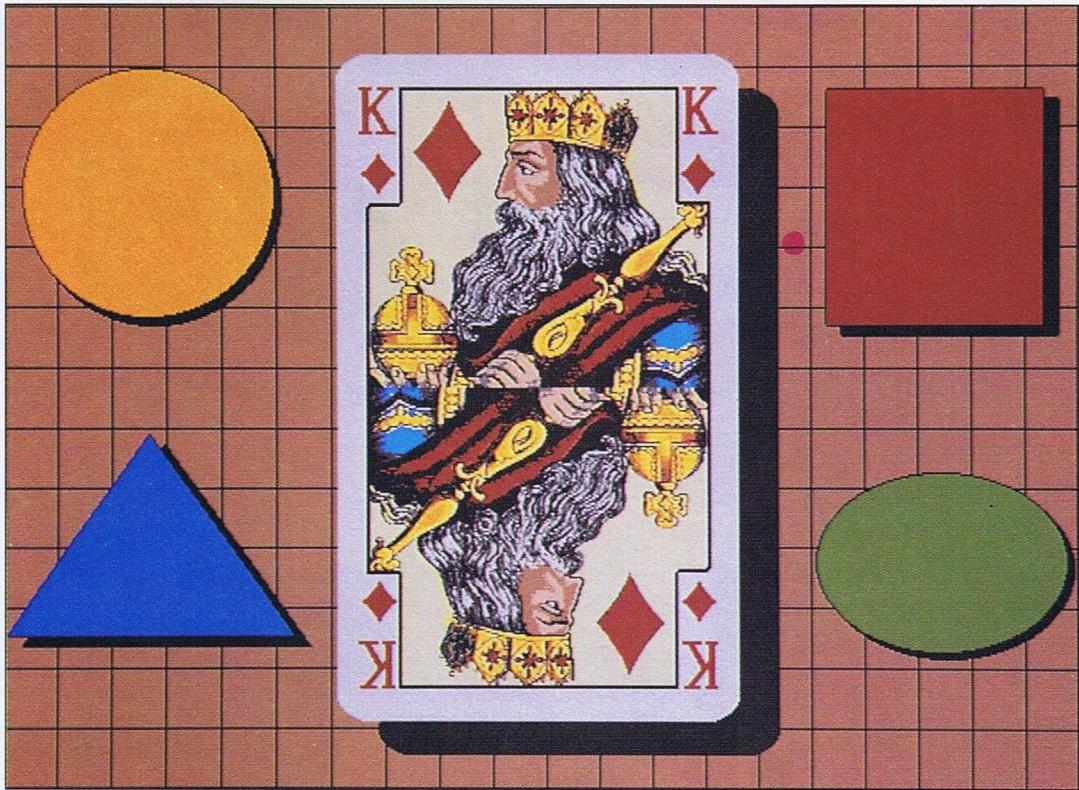
*Editor's Note:* Information received just as this article went to press indicated that **Saxon Publisher 1.2**—slated for release on July 15—will offer a number of significant enhancements over version 1.1, and will include SaxonScript Professional, a PostScript interpreter. 1.2 reportedly will support a much larger number of fonts than the limited repertoire available under 1.1. Of particular relevance to the subjects discussed in this article, 1.2 supposedly will offer more accurate on-screen color displays through a new PostScript color-screen preview feature that will make it possible for users to identify moiré patterns. Version 1.2 will also provide color-printing capability to PostScript laser printers for more accurate color proofs. The suggested retail price for 1.2 is \$395. ■



*Eyo Sama is former publisher of Amigo Times, a full-color magazine that was created entirely on the Amiga. He currently does consulting work for publishing houses and is writing a book and developing software. He would like to thank Rick Rock of Compu-Art for making his Compugraphic 9800 imagesetter available for the tests done for this article. Write to him c/o AmigaWorld Editorial, 80 Elm St., Peterborough, NH 03458.*

# Royal

*"In the land of the blind, the one-eyed is king," goes an old saying, but don't become a victim of single-system focus just because the Amiga is the best graphics*



*machine on the market. The confusing—yes, blinding—welter of formats and peculiarities in PC/Mac graphics is indeed a liability for the Big Two. Yet considering the huge installed base within their realms, it would be shortsighted to ignore the sheer economic opportunity out there for converting Amiga-generated graphics to output on these other platforms.*



# Opportunities

CONVERTING AMIGA GRAPHICS FOR PC/MAC OUTPUT

Throughout history, many countries have established their influence more through trade and commerce than sheer military might—which means countries are more dependent on each other than “superpower” proponents might admit. In today’s world, for instance, there is an “international” flavor to almost everything. No country can remain self-sufficient and insular and expect to survive. Every country has its trading partners, and all depend on international markets for the sale of at least some of their goods and services.

The same holds true in the world of computers. Text, images, and other data created on one computer system are often destined for final output on another, and the volume of traffic among different platforms continues to grow. With major “trading partners” such as the IBM PC (and clones) and the Macintosh sporting huge installed bases, Amiga graphics producers, especially, enjoy an enormous “international market” for their creations.

The problem facing such Amiga users is how to transform their creations—images, animations, and the like—for eventual output on other platforms. A great deal of progress, however, has been made on the import/export front. With the right hardware and file/disk-conversion facilities, plus some expertise in image-processing techniques, Amiga users can overcome many “trade barriers” and reap a handsome profit. (*For details on how to contact the developers of products covered in this article, consult the “Manufacturers/Distributors’ Addresses” list on p. 100.*)

## TOOLS OF TRADE

Setting up your trade routes is a tale of two choices: shipping your files via disk or sending them electronically. If your pictorial cargo is intended for a PC, you can create the disk with **Consultron’s CrossDOS** (\$39.95) and any Amiga floppy or hard-disk drive. **Commodore’s Bridgeboards** (A2088D for PC/XT, \$499; A2286D for PC/AT, \$799) also do the job, but are much more costly than the software solution. Nevertheless, if you do a lot of

work intended for the PC, you can use this computer-on-a-card to create and preview low-resolution images or to transfer extra-large files to another PC via a portable hard drive.

Your trek to the Apple market will not be as easy as your journey to the PC. Establishing trade relations with the Macintosh presents a unique problem. The Mac uses special floppy drives designed for that machine only, which means that in addition to software, you will need a Mac drive to configure your cargo.

The choices you have here, **ReadySoft’s AMax II** (\$249.95) and **New Horizons’ Mac-2-DOS** (\$349.95, including Mac-compatible disk drive; \$99.95, software only), are hardware/software solutions that use the external floppy-disk port to communicate with your Amiga. AMax II transforms your computer into a Mac and would be the ideal Mac processing solution if it supported color—but it doesn’t. Mac-2-DOS simply adds the Mac drive to the Amiga’s device list so you can read and write to it just like any other Amiga unit, but in Macintosh format.

None of the Macintosh emulators/adapters I used supported a hard-disk-to-hard-disk transfer between Amiga and Mac drives. Although AMax II can use your Amiga hard drive to store its files, it does not recognize your Amiga data, while Mac-2-DOS supports only floppy drives. This means that if the file is too large for a floppy disk, you will have to use a network, a direct-cable connection, or a modem for transfer (these methods work effectively with MS-DOS systems, too).

If you are lucky enough to have your Amiga on a network with the target machine, simply send a properly formatted file to the other unit. A direct connection, via serial cable, is the cheapest, fastest way to move your cargo to any other machine. If ▶

By Gene Brawn



## ROYAL OPPORTUNITIES

both units are running communications software, the hookup, while not always painless, is worth the trouble.

Sharing an electronic mailbox with the target computer is a viable, if costly, alternative to the direct-connection solution. Uploading, then downloading, a one-megabyte picture gets expensive fast, and it takes forever (don't even think about doing this with animation files!).

If nothing else works, and you are really desperate to get your file on a floppy disk, give one of the public-domain compression programs—ARC, ZOO, and PAK, or their newer, more powerful cousins, LHARC and PKZIP—a shot at squeezing a little more data onto your disk. Remember, the target machine must have a version of the same protocol in order to decompress the file.

Another way to skin a floppy is to use the raw RGB format (commonly called "Sculpt" on the Amiga) to divide the file in thirds, and then move it across and reassemble it. If none of the above methods works for you, sacrifice a little quality and use fewer colors, say 256, which will result in files about one-third the size of those produced with 24-bit color.

Also, while we are still on the subject of transferring files, here is something to keep in mind when you are working on the opposite side of the equation with the other guys' file formats: Beware of TIFF files, which become huge very quickly; instead, use GIF or PCX files, for these are much smaller (see the next section for more on file formats).

### SPEAKING THE LINGO

When it comes to graphics-file formats, we Amigans are undoubtedly spoiled. While the rest of the computer-graphics world struggles with dozens of display formats, we have the IFF standard. If, however, we are to convert our versatile IFF files to IBM's PCX and Targa formats, Mac's TIFF, or the ubiquitous GIF from CompuServe, we need very powerful software, indeed. Two packages, **ASDG's Art Department Professional** (\$240) with **Professional Conversion Pack** (\$90 extra) and **Active Circuits' RasterLink** (\$199.95), certainly meet this qualification.



**Figure 1.** Here is how the original 640×400 IFF image created on the Amiga (and which appears on the opening page of this article) looks when displayed as a GIF image on the Mac. Note how it appears somewhat "squashed" from top to bottom.

The list of foreign formats that these two applications read and write is impressive:

FILE FORMAT	AD PRO	RASTERLINK
TIFF	✓	✓
GIF	✓	✓
PCX	✓	✓
Targa	✓	✓
PICT	✓	✓
Raw RGB	✓	✓
MacPaint	✓	✓
DPIIE	✓	
Rendition	✓	
PostScript	✓	
Sun		✓
Caligari Broadcast		✓
ACS Harlequin		✓

Both applications also handle the major Amiga bitmapped formats, and both are easy to use. Simply point and click to select the filenames and formats to use for the conversion; the software does the rest. Animators, especially, will appreciate the batch-processing functions offered by each program.

Testing the major file-format conversion combinations with both programs, I was able to obtain excellent results with the TIFF, RGB, PCX, and GIF formats. I was particularly impressed with AD Pro's GIF conversion; it actually looked better than the original! Both programs, however, do a great job—with AD Pro getting the nod for "most comprehensive" because of its extensive collection of image-processing tools (which we will look at later on).

Keep in mind that most MS-DOS applications look for an extension to the filename that identifies its format. For example, some paint programs will not read the common PCX format without a ".PCX" added to the end of the filename. (Surprisingly, though, AD Pro did not automatically append the appropriate extensions to my converted files—I had to add them myself.)

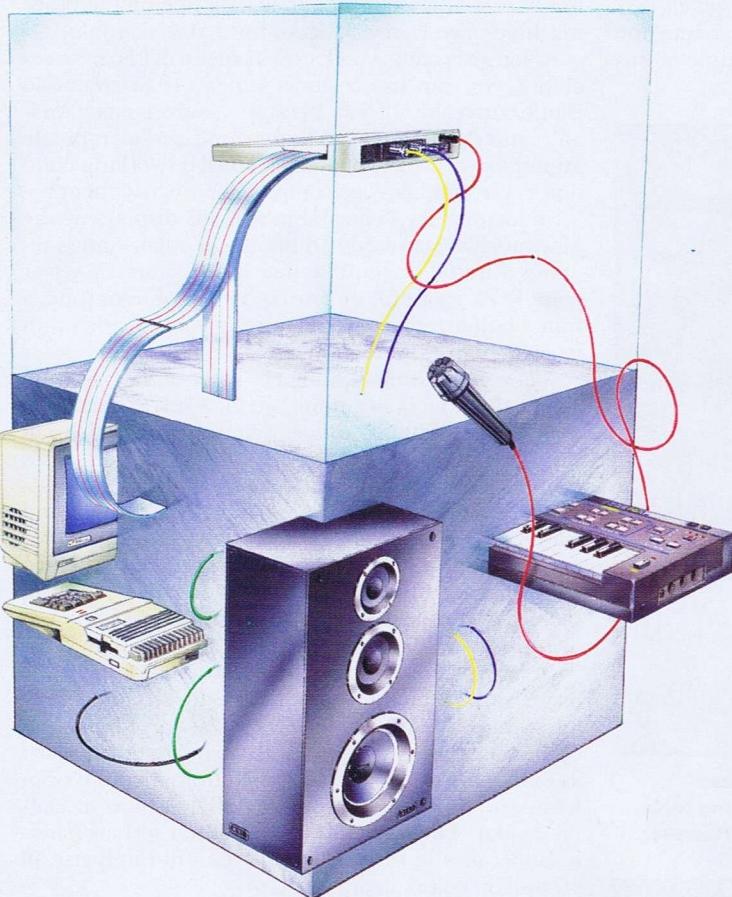
Similarly, the Macintosh uses a system of "headers" attached to each file that carry the name of the program that created the file and its official format. If this data does not match what the Mac application is expecting, it will not recognize the file. More detailed information on these Mac designations is available in the AMax II and Mac-2-DOS manuals. If you do encounter a particularly recalcitrant file, use one of the Mac's numerous disk utilities to change the header.

For the budget-minded, the **Amiga Videographics Guild** and **DevWare** offer collections of public-domain and shareware file converters at reasonable tariffs. If you are really pinching pennies, it is possible in some cases to get away without converting the file at all.

The PC versions of **Electronic Arts' DeluxePaint** (Enhanced, \$135.95; and Animate, \$134.95) accept ILBM (Interleaved Bitmap) files up to 64 colors (with the .LBM extension), while such Macintosh mainstays as **Studio 8** (\$295, **Electronic Arts**) and **PhotoShop** (\$895, **Adobe Systems**) will read IFF files. None of these applications, however, supports HAM or recognizes ANIM files. With the latter, you must save each frame as a separate image and reassemble the sequence on the other side in the animation format of the platform you are working on—a painful process. ▶



...THE ADVANCED MIDI AMIGA SAMPLER...



### THE HARDWARE

A.M.A.S. is a full feature 8-BIT STEREO audio digitiser complete with a full implementation MIDI interface, all built into the same stylish wedge shaped hardware unit which fully complements the computer, no messy extras are required. The digitiser accepts mono or stereo inputs via its line input sockets and is provided with an extra microphone input socket for direct vocal signal input. The MIDI sockets comprise of MIDI IN, OUT & THRU. Hardware versions exist for the A1000 and A500/2000 formats.

### THE SOFTWARE

The ultimate graphics/mouse user interface. Left right or stereo. Sampling rates of up to 28kHz. Dual real time oscilloscopes (1 for each channel). Real time spectrum analyser. Auto record trigger on input level. Up to 8 'BANKS' on 2 Meg machines (200-250k req per bank). Up to 10 stereo samples per bank. Load & Save samples in RAW or IFF data formats. Filter ON/OFF for computers inbuilt filter where applicable.

### THE MIDI SUPPORT

Selectable MIDI channel. OMNI/POLYPHONIC operation (with up to 4 voice POLY). MIDI controlled sample frequency shift. Each sample in a bank can be assigned to a MIDI note value. Samples can be 'MAPPED' across MIDI channel range. Samples may be played from AMIGA keyboard (MONO only). Plays samples from currently selected sample 'BANK'. Single BANK load/save operation.

All editing facilities work in stereo or mono. Editing includes:-

CUT, PASTE, INSERT, DELETE, COPY, OVERLAY, (MIX), REVERSE, FADE IN/OUT, VOLUME, UP/DOWN, SAMPLE SHRINK/STRETCH, FILTER, STEREO "BOUNCE", CHANNEL SWAP.

Hardware compatible with many other MIDI software packages already available for the AMIGA, no other extras are required.



1) AMAS software showing spectrum analizer.



2) AMAS software showing editing window & stereo oscilloscope.



3201 DRUMMOND PLAZA  
NEWARK, DE 19711  
(302) 454-7946

**\$199<sup>95</sup>**



Circle 63 on Reader Service card.

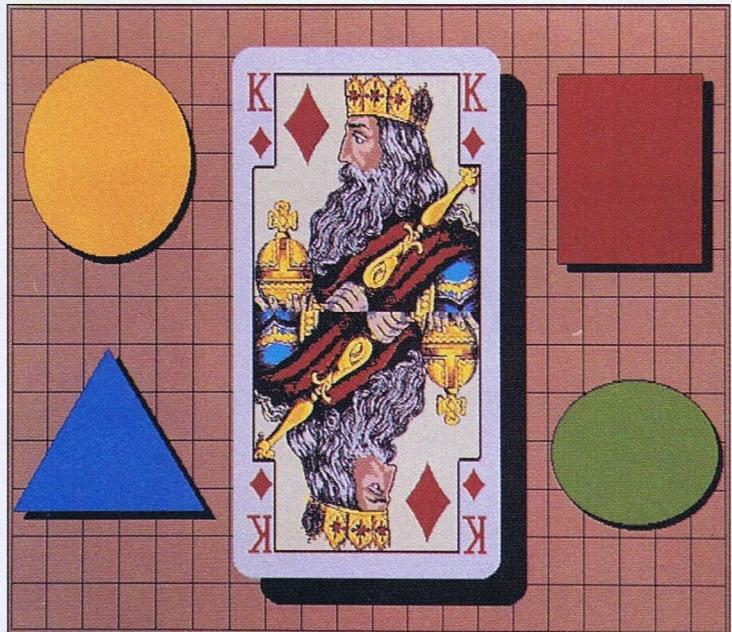


DEALER/DISTRIBUTOR  
INQUIRIES INVITED  
SEND FOR CATALOGS

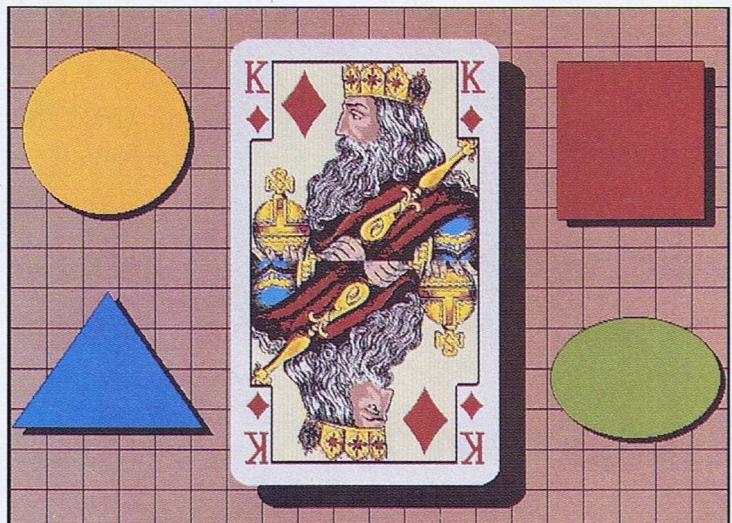
## ROYAL OPPORTUNITIES

### PROCESSING AND PREVIEWING YOUR CARGO

In crossing over to another platform, the last thing you want to have happen is for the other guy's software to stretch and squeeze your work beyond all recognition. The area most likely to cause trouble is aspect ratio, because your Amiga's pixels are not the same size as those of the other two systems: The Mac's pixels are square and the PC's, while rectangular, are shorter than the Amiga's. Although your 640×400 image fills the screen in both cases, the other systems pack more pixels vertically, so that your perfect picture looks as if someone had stepped on it (see Figure 1 for an example of this on the Mac).



**Figure 2.** Back in Amiga format, the same image has now been "stretched" vertically to 640×480 via AD Pro image-processing tools. Displayed on the Amiga, it now looks oddly tall and skinny. However...



**Figure 3....when the stretched image is now displayed back on the Mac, it looks perfectly fine. In fact, now go compare it with the original Amiga image on the opening page, and you will see there is virtually no difference!**

Fortunately, there is an easy fix, but you need an image processor to pull it off. I used AD Pro's Scale tool to stretch my 640×400 IFF image vertically to 640×480 for display on both the Mac and the PC (and clones). Before enlarging it, I used the program's superior dithering routines to break up the image, thus minimizing any banding effects when the picture is stretched and the pixels enlarged. Although the tall, skinny images might look odd on your Amiga (see Figure 2 for a Mac example), they look fine on the other machines (see Figure 3, again for a Mac example).

As long as your artwork uses a palette of 256 or fewer colors, you can use a stock Amiga (4096 colors/no frame buffer) for the job. Because, however, many Amiga graphics packages can understand and manipulate 16-million-color, 24-bit images, you'll be working blind unless you modify your computer to display them.

Simulating the color Targa and PC displays or the Macintosh's "standard" 16-bit image on an Amiga requires a frame buffer. Whether it uses your TV set or your RGB monitor to display its graphic output, a frame buffer replaces your Amiga's normal video with its own, high-resolution image.

A new generation of Amiga imaging devices is available to do this job, including two low-end external boxes: **HAM-E** (\$299.95, *Black Belt Systems*), which, although not actually a 16- or 24-bit frame buffer, displays most 24-bit files adequately; and **DCTV** (\$495, *Digital Creations*), which offers full 24-bit support and sports an economical NTSC output. On the higher end, **Firecracker 24** (\$995, *Impulse*) is a 24-bit video card offering full-blown RGB display output. All of these devices include a paint program and some image-processing features.

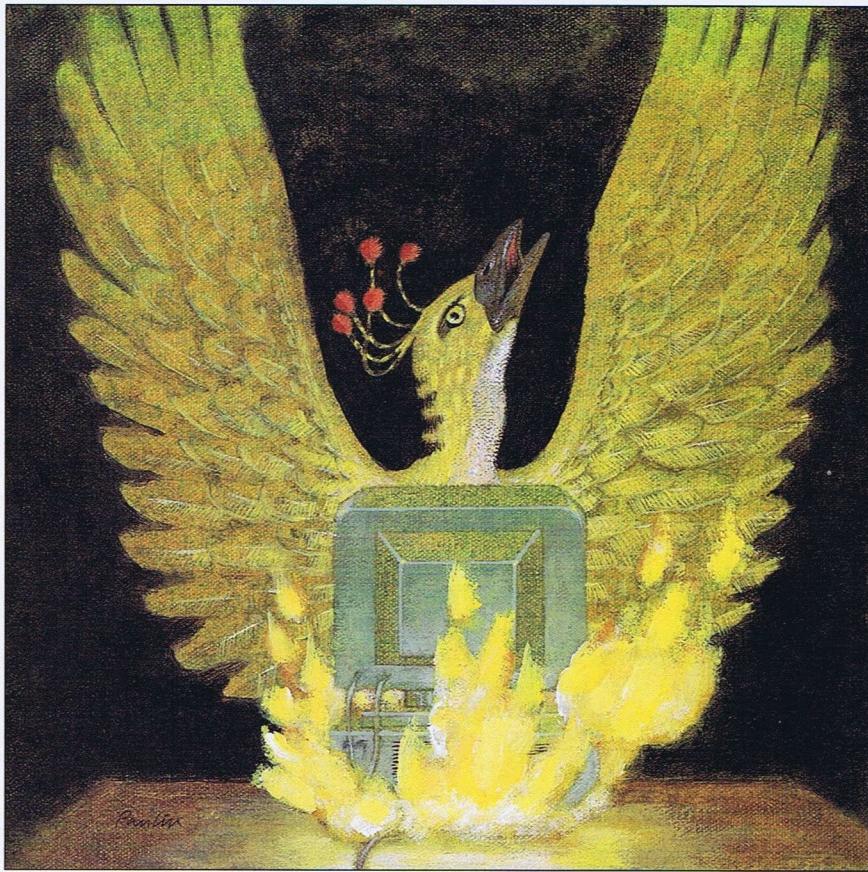
In making choices here, do keep in mind that while using your TV monitor for display is an economical solution, the TV display is really only an approximation of the final RGB image. NTSC screens are not as sharp as RGB—the colors may be shifted from the RGB original—and they cannot reproduce all the colors in a 24-bit display. The latter, however, is not a serious handicap, because in the real world, you will rarely use all 16 million colors in any image.

When working with RGB files, though, one thing you should definitely consider as a must is an accelerator card. RGB files can reach enormous sizes, which means very long processing times. A faster computer will make your export endeavors much more productive. Accelerator cards sporting 68020, 68030, or 68040 processors are available from CSA, Commodore, GVP, Progressive Peripherals, RCS, Supra, and TTR.

With recent news about possible cooperation between Apple and IBM, and other stirrings in the direction of open systems, the prospects for even greater "free trade" are growing. While smaller than the two superpowers, Commodore—with its Amiga flagship flying superior graphics and video—should seek to establish its influence in the market more firmly and cash in on the wealth of opportunity that awaits...and so should you! ■

*Gene Brawn is a digital animator, graphics designer, and frequent lecturer, as well as a contributing editor to this magazine. Write to him c/o AmigaWorld Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

# OPERATION PHOENIX



*Like that mythical Egyptian bird, we'll have you up  
and flying out of the ashes of even the most fiery hard-disk crash.*

**T**here is nothing quite like that sinking feeling you get when you turn on your computer and see a requester that says "Not a DOS disk in Unit 0." Suddenly, you realize that all the information you had stored on that disk may be gone forever. When the device in question is a hard disk, the feeling is especially devastating...that is, unless you have prepared yourself ahead of time.

We will start Operation Phoenix by looking at how you can insulate yourself from catastrophic data loss. We will also examine the causes of hard-disk problems and discuss how to salvage your data when a crash does happen. Finally, we will review the basics of hard-disk recovery—principles that will enable you to respond calmly should you ever experience a crash.

## BACK UP AND AWAY

Your best line of defense in preparation for hard-disk disaster is to keep duplicate copies of your information somewhere else. Although this "somewhere else" can be almost any media, the least expensive and most common back-up media are multiple floppy disks. Floppy backup can be very time consuming, particularly if you have a large hard disk. To

minimize the time and trouble, you should use software specifically designed for hard-drive backup (as opposed to that designed for general file copying). (For addresses of product developers or distributors, see the list on p. 100.)

There are several good commercial back-up programs available, including **Quarterback** (\$69.95, *Central Coast Software*) and **SuperBack** (\$79.95, *The Disc Company*). There are also a number of freely distributable back-up programs, including Matt Dillon's **Backup** and Mark Rinfray's **MRBackup**. Here are some desirable features you should look for when shopping for back-up-to-floppy software:

- *Selective backup.* It is usually more convenient to back up selected files and directories, rather than copy all the files on a partition each time. Most software allows you to mark the desired files and directories by clicking on them in a file requester. Some programs let you select files based on their date of creation. Also, some programs use archive bits (flags that the program sets when it makes the backup), which usually allow you to perform incremental backups. This means that instead of copying the whole disk every time you back up, you can do a full backup the first time and subse-

By Sheldon Leemon

quently save only new or altered files. Incremental backups take less time than full backups, but they require more disks and make the restoration process slower and more complex.

- *File compression.* Some backup programs compress files as they save. This reduces the number of disks required, but makes both the backup and restoration processes slower. File compression can also make it more difficult to salvage your data if an error occurs, for it may be impossible to decompress a file that becomes scrambled.

- *Special disk formats.* Special disk formats allow some programs to pack more data onto the disk (thus using fewer disks) and to write files faster. Because Amiga-DOS cannot read these formats, however, you cannot restore a file from the back-up set without having a copy of the back-up program handy.

- *Write verification.* Many programs allow you either to verify that the software has copied the file correctly (by reading the file after it is written and comparing it to the original), or to turn off the verification option for faster writes.

- *Multiple devices.* Some back-up programs support only one internal drive, while others let you back up to multiple floppies or to such devices as tape drives or removable-media drives.

- *Error recovery.* If an error turns up that makes it difficult for your back-up program to read one or more files, the program should be able to skip the unreadable files and restore the ones it can read.

#### FLIGHT MAINTENANCE SCHEDULE

With good software, you can back up about a megabyte of data per minute. This means that a full backup of a large hard drive can take half an hour, an hour, or even longer, during which time you must swap floppy disks every couple of minutes. At that rate, frequent backups can cancel out some of the speed and convenience benefits of hard drives.

The question arises, then, as to how often it is necessary to back up your drive. The short answer is that you should always have a copy of any data that would take more than a few minutes to re-create. (That holds true even when you are using only floppy disks or other storage media.) For example, while I was writing this article, I saved it to hard disk every few minutes or so, but subsequent to every fourth or fifth save, I also copied it to a floppy.

Keeping a back-up floppy in your drive at all times is a good habit to establish. It stops your drive from making that annoying clicking sound, and one floppy is generally sufficient to store all of the important files that you can create in a month or more. If you copy each new file to a floppy disk, you need not back up your hard drive more than once every two or three months.

Besides using good software, another thing that can save you time and trouble when backing up to floppy disks is hard-drive partitioning. Although some people like to store all their information in one large pool, I prefer to divide my disk into sections—even though

each partition requires memory for buffer space. For one thing, partitioning is a partial safeguard against disk errors. An error that appears in one partition will probably not affect the data in the others, making it less likely that you will lose all your information in one fell swoop. For another, partitions are a help in sorting your files into two basic groups: those that require frequent backups and those that do not.

A partition containing programs and files that other people have created (e.g., commercial applications such as word processors) does not change very often, except that you may add or delete files from time to time. You do not need to make backups of these files if you already have backups in the form of the original program disks. The only really irreplaceable files are those that are the products of your own work.

Keeping your data files separate from program files is a little more work (particularly because some file requesters default to the directory from which the program is run), but the time it saves in backups makes it worthwhile. If you want, you can keep track of the files in your program partition by occasionally saving a complete directory to floppy (using the CLI command DIR >df0:Partition Contents dh0: ALL), so that you can more easily reconstruct its contents.

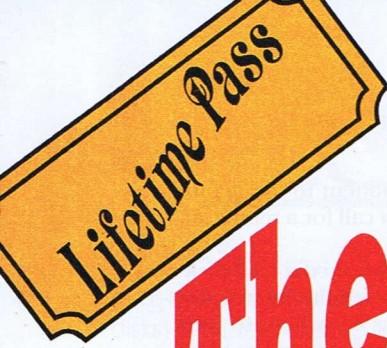
#### ALTERNATE CARRIERS

Although the floppy-disk method is the least expensive way to back up your hard drive, it is not the most convenient. Streaming-tape drives are generally considered the best back-up media. These cost hundreds of dollars, but they allow you to effortlessly back up an entire volume in just a few minutes using inexpensive tape cartridges. Affordable tape systems are just starting to become available for the Amiga. *Great Valley Products* and *Advanced Storage Systems* both have tape-drive and backup-software systems, while *Progressive Peripherals* has announced a system that interfaces through the floppy port and should work with any Amiga hard drive.

Several programmers are developing software for SCSI tape-backup systems as well. Programs such as *MrBackup Professional* (\$54.95, *TTR Development*) promise to let you connect a SCSI streaming-tape drive to any SCSI controller and make backups using the SCSI-direct command set. There are even a few freely redistributable programs for use with tape systems, including *BTNTape* on *Fred Fish* disk #392. Other convenient back-up options include removable-media drives such as the Syquest, Bernoulli, and Ricoh cartridge drives—or even an extra hard disk. Although these options are even pricier, you may find them appropriate if you have certain needs. (See “Bottomless Disks,” April ’91, p. 20, for a discussion of mass-storage devices.)

Regardless of which media you use, saving a copy of the mounting information for all of your drives is another measure you can take to stave off catastrophic loss. On systems that use one of the older drive controllers (such as the Commodore 2090A), this information is contained in the devs:mountlist file and is used to mount each drive partition.

Newer drive controllers store pertinent information (including the name of each partition, the starting and ending cylinder numbers of the partitions, the number of surfaces or drive heads, the number of sectors per ▶



# The Penny Arcade

Only \$19.95\*

## Solitaire

Try your hand at everyone's favorite card game. Choose which version of solitaire and cardback designs you want, then see if you can beat the deck! Solitaire is a game you will play for a long time, with excellent graphics and stimulating sounds as a bonus.

## Trampoline

Some types of games are classics and Trampoline fits the description in every sense of the word. Similar to popular arcade classics like Breakout and Arkanoid, Trampoline is a multilevel game of action. You use a trampoline to help the "little tramp" bounce and break the balloons with his umbrella, some of which are stuffed with money! The trick is to catch the coins without dropping our hero!

## GeoRoll

This unique two-player dice game uses dice with geometric patterns instead of numbers. The idea is to roll the best hand, trying for a full house, three, four or five of a kind, as well as a variety of other combinations. Good graphics and solid game play!

\* Get 3 jam-packed disks.

That's less than \$1.55 per game!



## Snakeskin Saloon

Following in the tradition of great shoot-em-ups like Capone comes this high speed game of action and rescue. Your job as sheriff is to save the ladies from the clutches of the desperados who are hiding in the saloon! Shoot your 44 Magnum fast and true, while looking out for the dynamite! From its detailed graphics to digitized sound, Snakeskin Saloon is guaranteed to make your day!

## Poker

For those who want the thrill of Vegas without the fear of going broke, Deluxe Poker is the game you have been looking for. Using a point and click interface, you can play draw poker all night long, and if you do go broke, who cares!

## Lunatic

Forget strategy - Lunatic is pure arcade action! It requires a steady hand on the joystick as you fight gravity and maneuver your spacecraft between the hills and valleys of an alien terrain. Once you manage to find the proper landing site, you still must avoid the zombies, mummies and sharks as you attempt to recover the sacred Ghetto Blaster!

## Also includes:

- Skewer
- Idhan
- Pinochle
- Ma Jong
- Tiny Ball 1.1
- Name that Note
- Play that Note
- Tic Tac Toe

Add more fun to your life today!

Call

**1-800-343-0728**

to order

**The Penny Arcade**

or clip this coupon  
and mail to:

AmigaWorld Special Products

80 Elm Street

Peterborough, N.H. 03458

1-603-924-0100

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Please send \$19.95 for each set ordered. Add cost of shipping required:

U.S. surface \$2.50; Canada/Mexico surface \$3.50; Canada/Mexico Air \$4.50;

Other Foreign Surface \$4; Other Foreign Air \$10.

Check/money order enclosed

Charge my:  MasterCard  American Express  Visa  Discover

Card# \_\_\_\_\_ Exp. \_\_\_\_\_

Signature \_\_\_\_\_

GD991

track, and the total number of cylinders on the hard drive itself) in special blocks known as Rigid Disk Blocks (RDBs). Although AmigaDOS cannot read this information, the drive-setup programs that come with most hard-drive controllers can, and they can copy it to a mountlist file on a floppy disk.

If your hard-drive preparation software does not let you save this data to disk, copy it down manually and keep it handy so that you can create a mountlist entry if need be. Should the RDB information become corrupt, your hard drive will no longer boot automatically, but you may be able to access the data by using the AmigaDOS MOUNT command to manually mount each partition after booting from a Workbench floppy. If there was a mountlist entry for a partition called dh0:, for example, you would use the command MOUNT dh0:.

If you can mount your partitions manually, you may be able to restore the drive completely just by using the controller's set-up software to write out the RDB again. The important thing to remember is that the partition information that you write out to the RDB must be the same as the original information, or else you will be unable to read your drive.

### WHERE DOES IT HURT?

Although Murphy's Law proponents may claim that failing to back up important data is the surest method of getting your hard drive to fail, there are actually more substantive causes for hard-drive problems. These fall into three classes: hardware problems, media problems, and disk-structure problems.

Hardware problems are easy to spot because they usually prevent the drive from functioning at all. Typical hardware problems include bad components on either the controller board or the drive, a faulty cable between the two, or bad power-supply connections that prevent the drive from getting power.

In the worst possible scenario, a faulty hard-drive controller can completely prevent your computer from booting up, so that the screen simply stays black, white, or some other color when you turn the computer on. If this happens, make certain that the controller board is seated properly in its slot and that the SCSI cable is plugged in correctly.

Some hardware problems that prevent the drive from booting still allow the computer to be started from a floppy disk. If your system displays a Workbench prompt when you turn it on, run the drive-setup software that comes with the hard disk. Most such software allows you to query the drive. If the set-up software is able to identify the type of drive, then the hardware is probably functioning correctly.

If the software cannot find the controller or driver software, the chances are that the problem is with the board. If you have other SCSI devices mounted and the set-up software cannot find any of them, the problem is likely to be with the drive. Sometimes you can identify a problem with the drive itself by noticing its failure to make the usual start-up noises (generally a whirring sound that gets faster as the drive comes up to speed, followed by the little chirp that the drive head makes when it moves).

Once you have traced the problem to either the controller or the drive, and have tried unsuccessfully to remedy it via the above methods, there's not much you

can do but return the faulty component to the manufacturer for repair. (You should first call for a return authorization, though.)

The two other types of problems, media and disk-structure problems, are less likely to require the services of Mr. Goodwrench, but are no less hazardous to your data. Media problems on hard drives present the same symptom as media problems on floppy drives; that is, the familiar "Volume Life's Work has a read/write error" pops up when you try to read from or write to a particular file.

What this means is that the filing system is unable to read or write data on one or more of the disk blocks that are associated with that file. Media errors may indicate an actual physical defect in the magnetic surface on which your information is stored, such as a scratch or particle of dirt. Often, however, the problem is due to magnetic damage—a defect in magnetic signals stored on the media, such as those that show where a data block begins and ends.

A media defect in a data file is relatively easy to live with because the problem arises only when you try to access that file. You may be able to use a directory utility to change the file's name to something invisible (composed entirely of space characters), restore another copy of the file from your back-up set (or use a disk-recovery program to salvage as much of the file as possible), and continue to use the 99.99% of the disk's storage space that is not affected.

Alternatively, you can use one of the programs that test your disk for unreadable blocks and marks them as "out of service," such as **Quarterback Tools** (\$89.95, *Central Coast Software*), **Dr. Ami.** (\$49.95, *Free Spirit Software*), or **ReadBlocks**, which comes with **Microbotics' HardFrame** controller. You can also use these programs on a preventive basis to map out bad blocks before they become part of a data file.

Unfortunately, media defects often strike in places more vital than the data area of a file. They can also affect the directory structure that holds the names of files, the data table that shows which disk blocks are associated with which filenames, or the root block, which contains essential information about the entire structure of the disk.

In these cases, you may get a message such as "Error validating disk MyStuff disk is unreadable," or "Not a DOS disk in Unit 0." This kind of error will probably render the entire partition unusable until you reformat it (using your drive-setup software or the AmigaDOS FORMAT command). Sometimes, you may even have to perform a low-level format operation, which will destroy all of the data on all of your partitions.

If you have current back-up copies, reformatting may be an inconvenience, but it will not result in any permanent loss of data. If you do not have current backups, however, you might like to try salvaging some of the data from the damaged partition. There are several programs available that attempt to read as much data as possible from a damaged disk, and then to copy that data to another hard-drive partition or to a series of floppy disks.

In the commercial category, Quarterback Tools provides a convenient means of recovering data. Two freely redistributable programs, Dave Haynie's **DiskSalv** and Werner Guenther's **FixDisk**, are also highly effective at copying data from damaged volumes. An ▶

SAVE \$35.75

# A source of technical information for the serious Amiga professional.

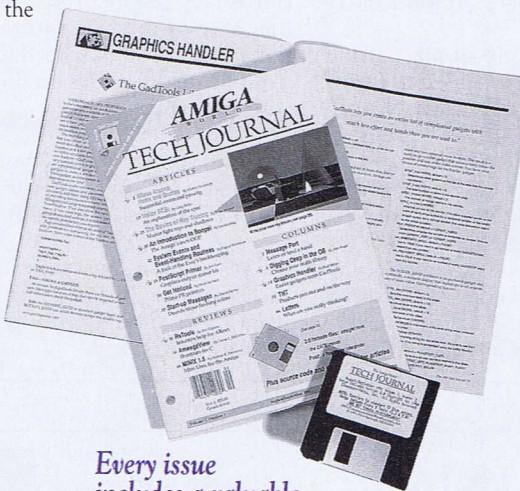
Introducing *The AmigaWorld Tech Journal*, the new source to turn to for the advanced technical information you crave.

Whether you're a programmer or a developer of software or hardware, you simply can't find a more useful publication than this. Each big, bi-monthly issue is packed with fresh, authoritative strategies to help you fuel the power of your computing.

Trying to get better results from your BASIC compiler? Looking for good Public Domain programming tools on the networks and bulletin boards? Like to keep current on Commodore's new standards? Want to dig deeper into your operating system and even write your own libraries? Then *The AmigaWorld Tech Journal* is for you!

Our authors are programmers themselves, seasoned professionals who rank among the Amiga community's foremost experts. You'll benefit from their knowledge and insight on C, BASIC, Assembly, Modula-2, ARexx and the operating system—in addition to advanced video, MIDI, speech and lots more.

Sure, other programming publications may include some technical information, but none devote every single page to heavyweight techniques, hard-core tutorials, invaluable reviews, listings and utilities as we do.



Every issue includes a valuable companion disk!

And only *The AmigaWorld Tech Journal* boasts a technical advisory board composed of industry peers. Indeed, our articles undergo a scrupulous editing and screening process. So you can rest assured our contents are not only accurate, but completely up-to-date as well.

**PLUS!** Each issue comes with a valuable companion disk, including executable code, source

*The AmigaWorld  
TECH JOURNAL*

code and the required libraries for all our program examples—plus the recommended PD utilities, demos of new commercial tools and other helpful surprises. These disks will save you the time, money and hassle of downloading PD utilities, typing in exhaustive listings, tracking down errors or making phone calls to on-line networks.

In every issue of *The AmigaWorld Tech Journal*, you'll find...

- Practical hardware and software reviews, including detailed comparisons, benchmark results and specs.
- Step-by-step, high-end tutorials on such topics as porting your work to 2.0, debugging, using SMPTE time code, etc.
- The latest in graphics programming, featuring algorithms and techniques for texture mapping, hidden-line removal and more.
- TNT (tips, news and tools), a column covering commercial software, books and talk on the networks.
- Programming utilities from PD disks, bulletin board systems and networks.
- Wise buys in new products—from language system upgrades to accelerator boards to editing systems and more.

The fact is, there's no other publication like *The AmigaWorld Tech Journal* available. It's all the tips and techniques you need. All in one single source. So subscribe now and get the most out of your Amiga programming. Get six fact-filled issues. And six jam-packed disks. Call 1-800-343-0728 or complete and return the savings form below—today!

To order, use this handy savings form.



Yes! Enter my one-year (6 issues, plus 6 invaluable disks) Subscription to *The AmigaWorld Tech Journal* for just \$59.95. That's a special saving of \$35.75 off the single-copy price. If at any time I'm not satisfied with *The AmigaWorld Tech Journal*, I'm entitled to receive a full refund — no questions asked!

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Check or money order enclosed.     Charge my:

MasterCard     Visa     Discover     American Express

Account No. \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

Satisfaction  
Guaranteed!  
Or your money back!

Canada and Mexico, \$74.95.  
Foreign surface, \$84.97.  
Foreign airmail, \$99.95.  
Payment required in U.S.  
funds drawn on U.S. bank.

Complete and mail to:

*The AmigaWorld  
Tech Journal*

P.O. Box 802, 80 Elm Street  
Peterborough, NH 03458

For faster  
service, call  
toll-free  
**1-800-343-0728.**

interesting side effect of these programs' data-recovery features is that they can recover files that you delete by mistake—as long as you perform your rescue operation before writing again to the disk.

The final type of drive problem is an error in the logical disk structure. This occurs when AmigaDOS is able to read the structure data from a disk block but cannot make sense of it. For example, the error message "key 1111111 has a checksum error" indicates that the data is invalid, while the message "key 1111111 already set" means that two files claim to own the same data block. Sometimes, this kind of error prevents the disk from being validated, which means that while you may be able to read data from the disk, you cannot write to it. When such an error occurs, you can either try to fix it in place or reformat the drive and restore your back-up information to it.

You can try to fix the disk structure in place using such commercial programs as those included in Quartermaster Tools and Dr. Ami., freely redistributable utilities such as FixDisk, or the Workbench's program DiskDoctor. The danger of using them is that if a disk error occurs while these programs are writing vital disk-structure information, the problem may worsen. That is why you should make sure that you have a back-up copy of the disk's contents before you try to use them. If you do not have a good copy of the disk's contents, you should at least try using a disk-recovery program (such as Disksalv, FixDisk, or that of Quar-

terback Tools) to copy the salvageable data before trying the fix.

#### EVERY GOOD BIRD DOES FLY... AGAIN

When you see your system spiraling into a nosedive, don't panic. Using the basics of Operation Phoenix, you will soon be off and flying again. Here, in summary, are the principles to keep in mind:

- If the drive does not work at all, check the hardware connections. Make sure the controller is plugged in correctly, the logic cable between the drive and controller is secure, and the drive is getting power.
- If the system can read the drive but gets errors, you can usually restore proper functioning by reformatting the drive or the bad partition. (Because reformatting means losing all of your data, you should always keep a duplicate set of files on floppy—particularly the files you created yourself.)
- If disaster strikes and you do not have a backup, a disk-recovery program will often allow you to salvage much of the disk's contents. ■

*Sheldon Leemon is the author of Inside Amiga Graphics and co-author of The AmigaDOS Reference Guide. Write to him c/o AmigaWorld Editorial, 80 Elm St., Peterborough, NH 03458.*

# DISTANT SUNS 4.0

- DISPLAY FULL SCREEN IMAGES
- SET VIEWPOINT OFF EARTH
- COMETS & ASTEROIDS
- ANIMATIONS
- AREXX SUPPORT
- LUNAR AND SOLAR ECLIPSES
- MANY EXPANSIONS
- AMIGADOS 2.0 AVAILABLE
- 3.0 UPGRADE
- 3 DISK SET
- 1 MEG, 2 DRIVES REQUIRED
- LIST \$ 99.95



## DESKTOP SPACE TRAVEL™

*Virtual Reality Laboratories, Inc.* 2341 GANADOR COURT, SAN LUIS OBISPO, CA 93401 • (805) 545-8515

# SYNCRO EXPRESS III



FOR ONLY  
**\$ 69.99**

NOW YOU CAN BACK-UP ANY  
DISK IN AROUND 50 SECONDS!!

YES IT'S TRUE!! SYNCRO EXPRESS IS A HARDWARE/SOFTWARE SYSTEM THAT WORKS WITH "DIGITAL IMAGE COPYING". THIS IS THE METHOD THAT COMMERCIAL DUPLICATORS ACTUALLY USE TO MAKE THE ORIGINAL FROM THE MASTER DISK. DATA IS TRANSFERRED AS RAW DIGITAL INFORMATION.

UNMATCHED PERFORMANCE!! It's hard to draw comparisons between Syncro Express and old fashioned Disk Copiers. Because they use parameters, they are almost guaranteed NOT to copy your latest purchase since parameters are not made available until several months after the release. But with the Syncro Express image copy method you can get a backup of all the latest programs, including blockbusters and utilities, quickly & easily. Start protecting your software investment NOW!!

Menu Driven Control Program couldn't be simpler!! Select Number of Tracks, and that's it!! Don't be misled by outrageous claims for "Nibbler" programs. This system can guarantee success by using the very Hardware/Software techniques that made the original!!

Now with a SUPER POWERFUL "SYNCRO" MODE that actually synchronises your Disk Drives for even greater accuracy!!

Can be switched OUT when not in use - totally transparent.  
 Make up to 2 copies simultaneously\*.  At least one External Drive required.

## PLUS MANY NEW FEATURES INCLUDING ...

DRIVE SPEED CHECKER - now you can check the speed of your drives - DF0-DF3. Easy and very accurate.

DISK TOOLKIT - Syncro III now includes a range of Disk Tools - Fast Format, File Copy, Hard Drive File Copy, Ram Disk, Disk Rename etc. etc.

## Why will Syncro Express succeed where others fail?

Some programs now have very sophisticated protection including long tracks, Incryption, etc. But remember, whatever the programmer comes up with, the disk then has to be commercially duplicated. That's where Syncro Express beats all others - it transfers data at MFM/TTL level, just like the

## POWER BY DESIGN

Syncro Express is designed in Europe where "Digital Image Copying" is the present sensation. This device, with its own custom chip, goes even further by offering a complete system for under \$70!!

PLEASE STATE AMIGA  
500\*/1000\*/1500/2000/3000  
WHEN ORDERING



THE WORLD'S MOST POWERFUL FREEZER-UTILITY CARTRIDGE

IS NOW EVEN BETTER



A2000 VERSION  
AVAILABLE

**\$119.99**

PLEASE STATE WHICH COMPUTER  
YOU HAVE WHEN ORDERING

IS HERE!!

STILL ONLY  
**\$99.99**  
FOR THE A300/1000

AMIGA ACTION REPLAY PLUGS INTO THE EXPANSION PORT OF YOUR AMIGA AND WORKS BY TAKING A SNAPSHOT OF THE WHOLE PROGRAM IN MEMORY AND SAVING IT TO DISK. THE BACKUPS WILL RELOAD COMPLETELY INDEPENDENTLY OF THE CARTRIDGE.

BUT THAT'S NOT ALL... AMIGA ACTION REPLAY GOES EVEN FURTHER BY PROVIDING AN UNBELIEVABLE RANGE OF TOOLS FOR BOTH THE HACKER AND PROGRAMMER ALIKE

• **SAVE THE ENTIRE PROGRAM IN MEMORY TO DISK** Special compacting techniques enable up to 3 programs to fit on one disk. Now saves directly to disk as Amiga Dos - reloads independently of the cartridge - even transfer to hard drive! Works with up to 2 Megs of Ram - even 1 Meg Chip Mem (Fatter Agnus).

• **UNIQUE INFINITE LIFE/TRAINER MODE - NOW MORE POWERFUL** Allows you to generate more and even infinite lives, fuel, ammo, etc. Perfect as a trainer mode to get you past that "impossible" level. Very easy to use.

• **IMPROVED SPRITE EDITOR** The full Sprite Editor allows you to view/modify the whole sprite set including any "attached" sprites.

RANGE OF IMPROVED FEATURES. • **VIRUS DETECTION** Comprehensive virus detection and removal features to protect your software investment. Works with all presently known viruses.

• **SAVE PICTURES AND MUSIC TO DISK** Pictures and sound samples can be saved to disk. Files are saved directly IFF format suitable for use with all the major graphic and music packages. Samples are displayed as screen waveform.

• **SLOW MOTION MODE** Now you can slow down the action to your own pace. Easily adjustable from full speed to 20% speed. Ideal to help you through the tricky parts!

• **RESTART THE PROGRAM** Simply press a key and the program will continue where you left off.

• **FULL STATUS REPORTING** At the press of a key now you can view the Machine Status, including Fast Ram, Chip Ram, RamDisk, Drive Status, etc.

• **POWERFUL PICTURE EDITOR** Now you can manipulate and search for screens throughout memory. Over 50 commands to edit the picture plus unique on screen status "overlay" shows all the information you could ever need to work on screens. No other product comes close to offering such dynamic screen handling of frozen programs!!

• **MUSIC SOUND TRACKER** With Sound Tracker you can extract the complete music in programs, demos, etc. and save them to disk. Saves in format suitable for most track player programs. Works with loads of programs!!

• **AUTOFAIRE MANAGER** From the Action Replay II preference screen you can now set up autofire from 0 to 100%. Just imagine continuous fire power? Joystick 1 and 2 are set separately for that extra advantage!

• **DISKCODER** With the new "Diskcoder" option you can now 'tag' your disks with a unique code that will prevent the disk from being loaded by anyone else. "Tagged" disks will only reload when you enter the code. Very useful for security.

• **PREFERENCES** Action Replay II now has screen colour preferences with menu setup. Customise your screens to suit your taste.

• **DISK MONITOR** Invaluable disk monitor - displays disk information in easy to understand format. Full modify/save options.

• **DOS COMMANDS** Now you have a selection of DOS commands available at all times - DIR, FORMAT, COPY, DEVICE, etc.

• **DISK COPY** Disk Copy at the press of a button - faster than Dos Copy.

• **BOOT SELECTOR** Either DF0 or DF1 can be selected as the boot drive when working with Amiga Dos disks.

## PLUS AN EVEN MORE POWERFUL MACHINE CODE FREEZER/MONITOR

EVEN MORE FEATURES INCLUDING 80 COLUMN DISPLAY AND 2 WAY SCROLLING:-

• Full M68000 Assembler/Disassembler • Full Screen Editor • Load/Save block • Write string to memory • Jump to specific address • Show RAM as text • Show frozen picture • Play resident sample • Show and edit all CPU registers and flags • Calculator • Help Command • Full search feature • Unique Custom Chip Editor allows you to see and modify all chip registers - even Write Only registers • Notepad • Disk handling - show actual track, Disk Sync pattern, etc. • Dynamic breakpoint handling • Show memory as HEX, ASCII, Assembler, Decimal • Copper assemble/disassemble

REMEMBER AT ALL TIMES YOU ARE INTERROGATING THE PROGRAM IN ITS FROZEN STATE WITH ALL MEMORY AND REGISTERS INTACT - INVALUABLE FOR THE DE-BUGGER OR JUST THE INQUISITIVE!

CALL TOLL FREE-

ORDERS **1-800-962-0494** ONLY

COAST TO COAST TECHNOLOGIES INC.,

1855 S. R.434, SUITE # 208

LONGWOOD, FLORIDA 32750

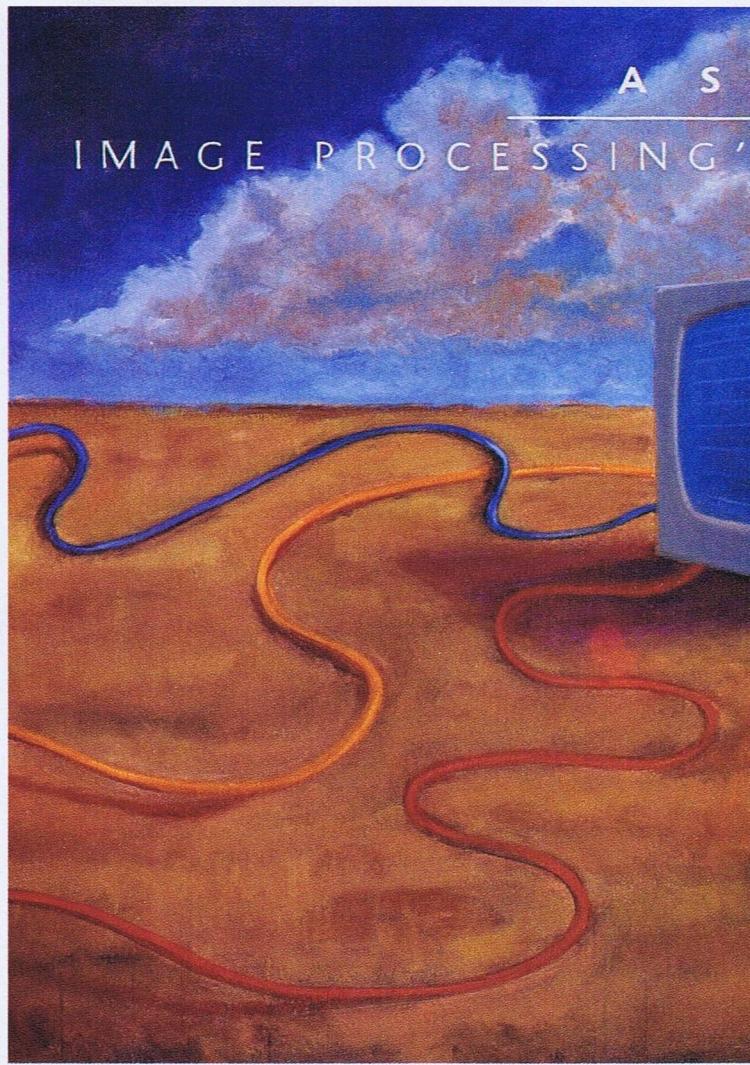
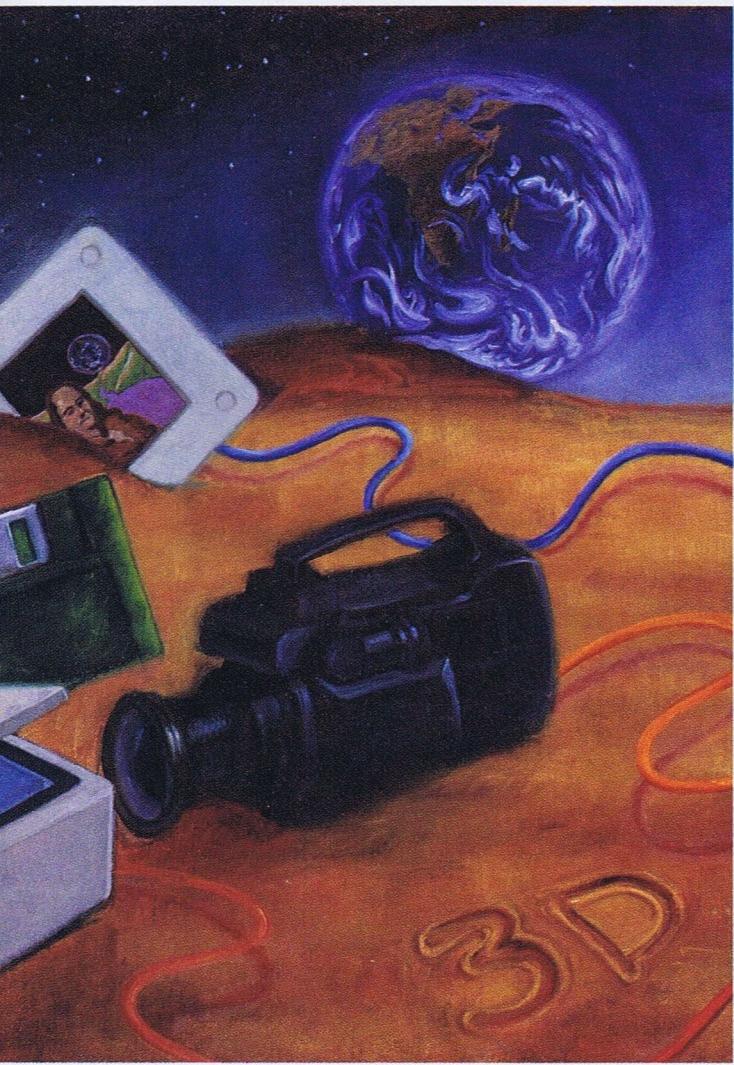
TECHNICAL/CUSTOMER SERVICE (407) 767 - 0779

\*ADD \$4.00 SHIPPING AND HANDLING (\$10.00 CANADA/MEXICO)

ALL GOODS SHIPPED 2nd DAY AIR UPS

WE ACCEPT MASTERCARD/VISA/CHECKS/MONEY ORDERS OR COD's (ADD \$2)

ORDERS NORMALLY DESPATCHED WITHIN 48Hrs.



## WHY WE INSIST ON VIEWING OURSELVES



CONCEPT...

Some may say our perception is a bit bold. But for Amiga users, it perfectly describes where we fit in the image processing world. Directly in the center ... joining input, processing and output.

Our 24-bit image processing software, *Art Department Professional (ADPro)*, gives you the power to import from video digitizers and color scanners. Or input and save to a wide variety of file formats including PCX™, IFF, GIF™, TIFF\* and TARGA®\*. You can



SOURCES...

even output to video, film recorders or PostScript® printers. And you can expand input and output capabilities as your needs grow.

*ADPro* also solves many complex imaging problems which have plagued the Amiga artist. Modify dynamic range to adjust color vividness. Create professional backgrounds. Remove unwanted pixels in one simple operation. Make aspect corrections or eliminate jagged edges with powerful scaling and anti-aliasing tools.

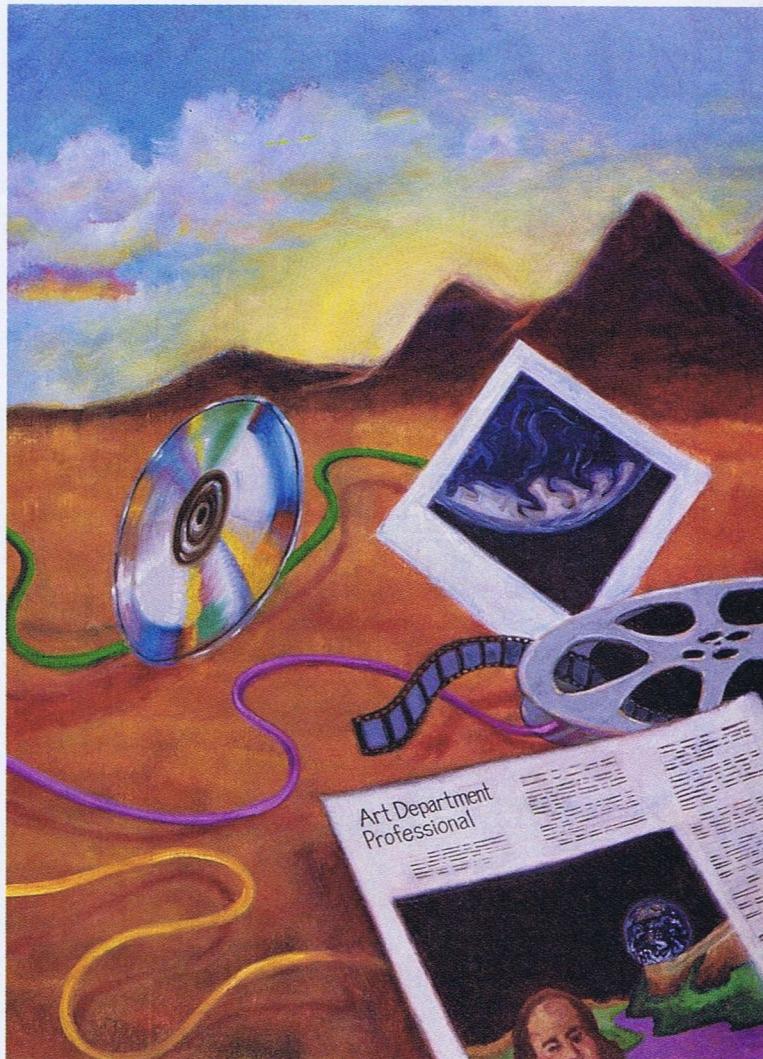
A S

\*TIFF and TARGA support are part of the professional conversion pack. Available separately.  
The following names are trademarked by the indicated companies:  
Art Department Professional, The Art Department - ASDG, Inc.; Amiga - Commodore-Amiga, Inc.; PCX - ZSoft Corporation; GIF - CompuServe Information Systems; TARGA - Truevision, Inc.; and PostScript - Adobe Systems Corp.

925 STEWART STREET MADISON, WI

D G

## COMMON GROUND



## AS THE CENTER OF THE UNIVERSE.



INPUT...



And merge images from different sources (in true color). *ADPro* solves these problems and more with a simple point and click.

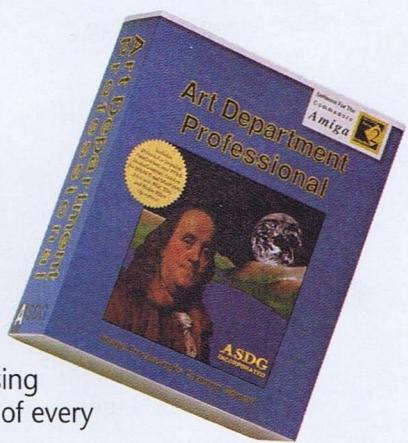
It also supports the programming language, ARexx. So you can process hundreds of images automatically or set up your own shortcuts for often-used sequences.



RESULT.

Choose *ADPro* for professional uses. Or for an entry-level alternative, consider *The Art Department*

(*TAD*). Both place the exciting world of color processing within reach of every Amiga user.



So, join us at the center of the universe. You'll love the view.

53713 U S A 608 - 273 - 6585

Circle 4 on Reader Service card.



A continuing series  
of tips, techniques,  
and tricks for  
creating more  
imaginative Amiga  
graphics.

By Joel Hagen

# Fantastic Voyages: Creating a Mars Simulation

MARS HAS LONG been an object of fascination. As a boy I scrutinized hazy and mysterious images of the "red" planet and listened to scientists such as Wernher von Braun and Willy Ley discuss the probability of hardy vegetation patterning the surface. Years later our Mariner and Viking spacecraft journeyed to Mars and returned thrilling images of a desolate and beautiful world.

Today, I sit in my studio watching the landscape of Mars roll by on my Amiga screen as though I were gliding down the vast canyons of Valles Marineris—a trip our spacecraft have yet to make. It is a trip, however, that any Amiga owner can simulate by making use of VistaPro, Virtual Reality's landscape-generating program. In this month's column, I will use some of VistaPro's features to explore geologic events from Mar's past.

While VistaPro requires more memory (3MB) and costs more (\$149.95) than the original Vista program, many of the techniques I describe also apply to Vista, which requires only 1MB. Keep in mind, however, that Pro offers numerous features and capabilities not found in Vista. (An updated version—1.2—of Vista was just released at \$59.95. For a complete review of both programs, see "Landscape Generators" in the "Reviews" section of the July '91 issue, p. 15.)

VistaPro makes shaded, three-dimensional pictures of landscapes. It can create billions of imaginary fractal landscapes, but it can also create pictures of real places, using data based on DEM (Digital Elevation Model) data files from the US Geological Survey. The USGS provides DEM files for most of the surface of the earth and for many of the other planets and moons of our solar system.

Virtual Reality includes a wide variety of DEM landscape files as part of the Vista and VistaPro packages, ranging from Yosemite valley to Olympus

Mons on Mars. Additional sets of landscape disks are also available, including the one I used for this project: the six-disk Valles Marineris set (\$80), covering the length of Mars' most amazing canyon. You can employ the procedures and techniques outlined here for virtually any kind of simulated exploration of any area for which DEM files are available.

Through an intuitive and sophisticated interface, VistaPro lets you set a camera and target anywhere on the map of the landscape you have loaded. You can adjust lighting, altitude, haze, lens settings, and so on, and then render a full-color shaded image. You can render images in any standard Amiga resolution, including HAM, overscan, and IFF24. You can even create a path through a landscape and then produce an animation with the frames VistaPro can automatically generate for all the points on that path.

## VERY GRAND CANYONS

Viking images indicate that water once flowed over the surface of Mars, carving canyons and even forming lakes. There are compelling visual suggestions of lake sedimentation in photos of the Ophir, Candor, and Melas Chasma regions near the middle of Valles Marineris. For the illustration accompanying this column, I chose—from disk 2 of the Valles Marineris set—the Vista DEM file "VM1.scape," which is an overview of that region. Other files from the set cover the area in greater detail, but for this project, I was looking for an aerial view that would show the whole region. I wanted to experiment with ways of re-creating what the canyons might have looked like with lakes of different depths.

After loading the DEM landscape, I froze the X positions of camera and target by clicking on the X button in the Control panel. This kept me centered over the valley. I moved the camera slightly south and the target slightly north to give some perspective to the view. The height of the camera above the landscape—its Z position—defaults

## Lift off for a little interplanetary exploration with this simulation tutorial using VistaPro.

to 30 meters, but I wanted a higher viewing angle, so I entered a value of 6000 meters in the camera's Z gadget. From the menu, I selected nonoverscan, lo-res interlace as a rendering resolution. Bringing up the Palette controls, I set sky color to black so as to isolate the landscape, and I made a gray-blue water color for the lakes I planned.

The DEM files of Valles Marineris have a vertical exaggeration of 3.5 applied to all the data. This enhances certain features for study, but it also gives a misleading appearance to the landscapes. VistaPro's controls let you scale the data back to normal values. To make my view look as realistic as possible, I entered a value of 0.29—the reciprocal of 3.5—in the Scale gadget, thus eliminating vertical exaggeration.

Switching to the Light controls, I set light direction from the east and returned to the main Control panel. To check the results of my settings, I did a quick test rendering by using the coarsest setting for the Poly buttons on the Control panel. The Poly options are 1, 2, 4, and 8, with 8 (using 2048 polygons to render a landscape) being the coarsest. This provides the fastest rendering time, but the lowest detail. After test rendering at 8 (or sometimes 4), I always do final renderings at level 1 (which uses 131,072 polygons) to achieve the finest detail.

Satisfied with my test, I added water. VistaPro offers some interesting options to accomplish this. Gadgets allow you to create lakes or rivers by clicking directly on the map. The X, Y, and Z coordinates of the cursor are always displayed for reference, and a lake will fill an area bounded by the Z elevation at the map point you specify with the mouse.

I chose, instead, to raise the sea level. The Sea gadget showed an elevation of 111 meters as the lowest point on the landscape. Wanting to see what the valley would look like flooded to a



In "Mars Lakes" (above), a region of Valles Marineris on Mars is shown flooded with 100 meters of water in a re-creation of what may have been part of the early history of that planet. The illustration was created with VistaPro, with additional help from Digi-View and DeluxePaint III.

depth of 100 meters, I entered a value of 211 in the Sea gadget. After new contours were recalculated, the map window showed interesting bodies of water scattered through the lower elevations of the three chasms.

I did the final rendering at Poly level 1 and saved the result. Loading that palette into Digi-View (NewTek), I froze it and digitized the inset of Valles Marineris (lower-left corner of the illustration) from a Viking photo. I assembled the finished illustration in DeluxePaint III (Electronic Arts) for use as part of an interactive Mars presentation I would later do with The Director, Version 2 (Right Answers Group).

I found it fascinating to flood that vast valley to different depths and compare the results with Viking images, searching for layering. Some other interesting options also came to

mind: For added effect, I could generate a pair of images, offsetting the camera slightly. Merging the pair, I could then view it as a stereo image with X-Specs 3D (Haitex Resources). I could also save the image as a hi-res IFF24 file, load it into DCTV (Digital Creations), and view it in full NTSC color. The possibilities for what you can do with the results of your explorations are many and marvelous! ■

*Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope for a reply.*

# VIDEO



# SUITE

# Toasting Fonts to Perfection

*Third-party developers are now easing your access to Video Toaster fonts that will say it for you with style.*

By Geoffrey Williams

THE COMBINATION OF the *NewTek Video Toaster*'s digital effects and its capacity for 24-bit character generation makes it possible for you to create some pretty eye-popping titling. All you need are the right fonts and a sense of design.

You can create Toaster fonts by using *Electronic Arts' DeluxePaint III* in lo-res mode to make large versions of each letter. The letters are turned into a standard Amiga font file, and then the Toaster font utility converts the file into a Toaster font. This utility (which does convert ColorFonts, despite what the documentation says) reduces the letters to one-fourth of their original size. It is unfortunate that, once converted, fonts can be displayed only in the Toaster's NTSC output, for not only does the conversion perform additional processing, but there is loss of detail in NTSC, causing the fonts to look dramatically different from the way you originally designed them.

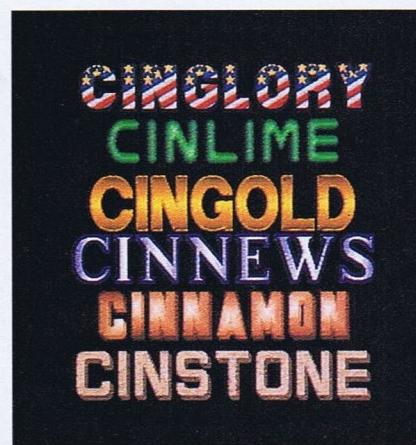
This makes creating Toaster fonts much more difficult than designing standard Amiga fonts. You face a lot of trial and error and redesigning along the way to get the look you want. Just be glad that third-party developers have spent countless hours doing the work for you. (*For developers' addresses, see list on p. 100.*)

## READY-MADE CHOICES

Some of the most respected fonts in the Amiga community are those created by



Kara's metallic Toaster fonts.



Shereff's Cinnamon Toast fonts, set 2.  
Kara Blohm of *Kara Computer Graphics*. **Kara Fonts** have set a high standard for ColorFonts, and two recently released Toaster Fonts sets (\$99.95 each) will not disappoint you. Set 1 contains Chrome Serif, Gold Serif, Gold Extrude, and Inflated, while set 2 boasts

Marble, Brass, Granite, and Wood. These fonts are dimensional and beautifully designed, and they come with upper- and lowercase in two sizes.

I've always liked *Classic Concepts'* font sets, and it has taken a unique approach to marketing Toaster fonts. All of its new sets include both Toaster-font and standard bitmapped versions. Most of the fonts include the full upper- and lowercase character set and come in two to five sizes each. These are well designed, and Classic Concepts offers the largest variety of ColorFonts. It also has the best documentation around, with lots of information on fonts and basic typography.

You can choose from a number of Classic Concept packages. The **A\*Video Professional Font System** (\$249.95) contains 13 typefaces in varying sizes, for a total of 39 fonts. All except one are ColorFonts. The weather and sports fonts contain pictograms, enabling you easily to add graphics to your screens. **Video and Headline Fonts Take 3** (\$129.95) includes eight typefaces; all except one are ColorFonts. There are 21 fonts in varying sizes. **CalliVideo Fonts** (\$239.95) is a selection of script and calligraphic faces for adding flair and flourish. You get 12 typefaces (three monochrome) in several sizes, with 41 fonts in all.

Classic Concepts is the only company I know of that is concentrating on foreign language fonts, and its **Euro-Fonts** (\$149.95 each) offers font sets ►

H

A

M

E

# High quality RGB output for your Amiga

These images are completely unretouched photos taken from a stock 1084s RGB monitor using the basic HAM-E unit. They are pure RGB, *not* smearable composite.

The new HAM-E Plus is an even more potent yet virtually transparent, anti-alias engine which offers near photographic quality images on standard RGB monitors.

No other graphics expansion device offers so much performance and costs so little! And all the software to run it is **free**. Even upgrades!

There's not enough room to cover all the features of this system, so here's just a few.

## SYSTEM FEATURES

- Paint, render, convert and image processing software
- 18/24 bit "pure" modes
- 256/512 color register modes
- RGB pass through
- Screen overlay/underlay
- Screens pull up/down & go front/back
- View with any IFF Viewer
- Animate via ANIM or Page Flipping
- Works with DigiView™
- Completely blitter-compatible
- NTSC encoder compatible
- S-VHS encoder compatible
- PAL & NTSC compatible
- Uses *only* RGB port
- FCC Class B. UL Listed
- Works w/std Amiga monitors
- Does *not* use Amiga power

## PAINT FEATURES

- Custom brushes use blitter
- RGB, HSV, HSL, CMY palette
- RGB and HSV spreads
- Extensive ARexx™ support
- 10 Color Cycle/Glow ranges
- Range pong, reverse, stop
- Smooth zoom, rotate or scale
- Area, edge, outline fill/overfill
- Dithered 24 bit fill mixing
- Anti-alias with any tool or brush
- Loads, shows GIF™ *exactly*
- "C" source code available free
- Upgrade from BBS 24 hrs/day
- Color or 256 greys painting
- 256 color stencils
- Matte/color/anti-alias/cycle draw
- Prints via printer device
- Auto enhance std IFF palettes
- Writes IFF24, GIF™ HAM-E

## IMAGE COMPATIBILITY

- 24 bit IFF, 24 bit IFF with CLUT chunks
- 2 to 256 color standard IFF, half bright
- HAM, DKB and QRT trace
- RGB8 and RGBN
- Targa™
- GIF™
- Dynamic HiRes™
- SHAM, ARZ0, ARZ1, AHAM, 18 bit ScanLab™
- UPB8 brushes
- All of the 12 different HAM-E format image file types
- Images may be scaled and converted to 24 bit IFF files

## HAM-E™ 299.95

384 × 480 Pixel Output (NTSC)  
384 × 560 Pixel Output (PAL)

(All software works with either unit)

## HAM-E PLUS™ 429.95

768 × 480 Pixel Output (NTSC)  
768 × 560 Pixel Output (PAL)

## NEW IMAGE PROFESSIONAL™

### THE MOST IMPORTANT 24 BIT IMAGE PROCESSING GRAPHIC SOFTWARE EVER CREATED FOR THE AMIGA

- Over 100 image processing operations
- 24 bit IFF input, output and viewing
- Any number of named image buffers
- Image sizes to 32767 × 32767 pixels
- 24 bit blending, clipping and compositing
- Apply any function using paint-like tools: Freehand, Rectangle, Ellipse, Polygon, Polyarc
- Full 24 bit undo, redo and isolate
- Displays in 24 bit, 18 bit, 256 color, or 256 greyscale
- Blended Merge and RubThru in many ways: Color-keyed, minimum, maximum and direct
- 24 bit warping, shading, rotation, geometric distortions and scaling
- Extremely intuitive, easy-to-use interface

**\*ALL SOFTWARE INCLUDED AT NO EXTRA COST WITH EVERY UNIT**

**BLACK BELT SYSTEMS**

Call (406) 367-5509 for more information. 398 Johnson Rd., Glasgow, MT 59230  
SALES: (800) TK-AMIGA International Sales (406) 367-5513  
BBS: (406) 367-ABBS FAX: (406) 367-AFAX

DigiView™ NewTek; Amiga™ Commodore Business Machines; GIF™ CompuServe; Dynamic HiRes™ NewTek; ScanLab™ ASDG; Targa™ True Vision;  
Eagle Image copyright True Vision; 1084s™ Commodore; AHAM, ARZ0, ARZ1™ ASDG; HAM-E™ Black Belt Systems.

for Cyrillic, Spanish/French, German, and Scandinavian languages. Keep in mind that you get both Toaster and Amiga formats for all of these.

One of the first companies to enter the Amiga CG market was *Shereff Systems*, and it now has two sets of color Toaster fonts (\$99.95 each). **Cinnamon Toast Fonts 1** contains Contrast, Engraved, Hammer, Jewel, and Scout. **Set 2** contains Cinnamon, Glory, Gold, Lime, News, and Stone. Each font comes in two sizes, but in uppercase only. While some of these are novelty fonts, they are still general enough to find a wide variety of uses.

Shereff also has a set of monochrome fonts based on the fonts available for its character generators. The **Bread & Butter** set (\$99.95) includes 17 fonts, each in four sizes, for a total of 68. These were designed with antialiasing, so they are very clean (although all of the Toaster fonts I've seen so far look very smooth). A nice bonus with this package is a font converter that maintains the size of the Amiga font, rather than reducing it to one-fourth the size as does the Toaster utility. It will not work on ColorFonts, though.

The most extensive collection of monochrome Toaster fonts comes from *Allied Studios*. There are five sets of **1st Prize Toasted Fonts** (\$69.95 a set), each having from seven to nine fonts, most of them in six sizes. With 39 typefaces and 228 fonts across the five sets, you have a lot of options. According to the documentation, these were created from high precision outline fonts, turned into bitmaps, and then converted to Toaster format. They look good, and give you a lot of the standard classic typefaces.

The issue of using outline fonts is significant. Many other platforms are moving to scaleable outline fonts for video work. While I have heard that there is no major revision to the Toaster CG expected in version 2.0 (which will disappoint those who have been grumbling about its deficiencies in that area), I think it is important for NewTek to consider adding scalable font technology in the following upgrade. Scalable font technology is the way of the future, and is fast becoming the standard on other computers. Needing a different font for each size takes up far too much room (the ten font sets I looked at took up over 30 megabytes), and you are limited to whatever sizes the developer happens to provide.

Now there is a way to get into scalable font technology with the Toaster. **Gold Disk** offers its complete collection of **Compugraphic** fonts with a special utility that will create bitmap versions in any sizes you desire. You can then convert them to Toaster format. While not as elegant as having this capability built into the Toaster, it does work.

### DESIGN BASICS

Once you have some great fonts, the next step is to use them effectively. As you lay out a screen of text, keep in mind that the viewer will not be nearly as close to the screen as you are. Think how far you sit from your television when you watch it. Very small text is not readable, and it is used on TV only for detailed exclusions in those "only \$19.95" commercials to ensure no one actually reads them.

When you design a screen of text, use the minimum number of words to get your message across. The fewer words on the screen, the larger you will be able to make the text and the easier it will be to read. As an incentive to stay brief, imagine that each word costs you \$20. Rewrite your text to use five fewer words, and you save yourself \$100. (Sure, it's only imaginary, but think of all the things you can imagine buying with it.)

Choosing the right typestyle is important, but it is also a highly subjective art. Here are a few general rules to get you started:

**Rule 1:** Too many different styles make a screen look busy and difficult to read. Generally, you should use no more than three styles per screen (but this does not preclude using variations of the same type family, such as Helvetica Bold, Helvetica Narrow, and so on).

**Rule 2:** Sans Serif fonts, highly decorative fonts, and all-caps fonts should be used only for headlines and small areas of text. All-caps is one of the most difficult styles to read. Serif typefaces (they have a little flourish at the end of each stroke) are considered much more legible.

**Rule 3:** The typestyle should enhance the message. If it does not, you are better off with a more traditionally styled face. A soft and beautiful font should not be used for a message that implies action, just as that gorgeous Ice font would be a poor choice for a Valentine's Day message. Appropriateness is very important.

After you've chosen the font, you also need to choose the color (although you cannot change the color of color

Toaster fonts). Although red seems like a great choice, true red does not work very well in NTSC, as it has a tendency to bleed. Light yellow, white, and light blue are much better for text. Some color combinations do not work very well together in NTSC, so it's a good idea to make written notes on the background and text-color combinations that you know look well on tape.

Most Toaster fonts are not well kerned, often requiring some adjustment of the spacing between letter pairs. The look you want is of uniform spacing between all letter pairs. Unfortunately, a bug in the Toaster CG keeps you from kerning color fonts as tightly as you might like, because when you cross a font's boundary, the color information in that part is lost.

### CHEAT SHEETS

One of the first things I do when I get a new font is to grab a copy of the ITC type catalog (available at art supply stores) and determine to which traditional fonts my Amiga fonts correspond. Because only font names may be copyrighted, most computer fonts are similar to standard fonts in the ITC catalog. The lowercase g is one of the best letters to compare, as it is usually the most distinctive. I find that knowing the proper names of fonts makes it easier to organize them and helps me avoid useless duplication.

Another good habit is to compile a catalog with printed versions of your fonts and notes thereon. A real time saver is to load each font into the Toaster and type it on the screen to see how many characters will comfortably fit on a line in each size. Marking these numbers in your catalog and referring to them before you start laying out your headlines will save a lot of trial and error in trying to make things fit.

The first rule when laying out type on the screen is that it should help to convey your message. The Toaster CG is a powerful tool, but remember that although it can make pretty pictures, its true function is to produce readable text that effectively communicates your message. ■

*Geoffrey Williams is executive producer for Creative Business Communication and head of the Amiga Video-Graphics Guild. Write to him c/o AmigaWorld Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

# *"It is indeed a winner"*

*"There is simply no other Amiga program that comes close to it in terms of out-of-the-box useability, speed, or level of features."*

AMIGA WORLD August 1991

## **Professional Computer Aided Design and Drafting for the Amiga**

DynaCADD is a 2D and 3D general purpose design and drafting software package for electrical, mechanical, architectural and civil applications. Fully interactive 2D and 3D capabilities to both North American and European standards. 16 decimal places precision. Math coprocessor support. Pull down menus, mouse, keyboard, function keys and user definable macro keys. Online context sensitive documentation. On screen command help line. Extremely user friendly icon based interface that sets the program apart from all competitors.

- Multiple 3D views
- Hidden Line Removal
- Dimensioning
- Line Weights / Styles
- Resident View Control
- Grid and Axis
- Sectioning / Hatching
- Entity Types Base entity types include: POINTS, LINES, CIRCLES, ARCS, FILLETS, ELLIPSES, ELLIPTICAL ARCS, TEXT, SOLID, 3D FACES, B-SPLINES and BEZIER CURVES. Multiple entities in BOXES, POLYGONS, POLYFIGURES, SUBFIGURES, SECTIONING and HATCHING. Entities can be either 2D or 3D. Entities in 3D can be transformed to 2D.
- Fifteen 2D dynamic Entity Insertions
- Location and Entity Snap
- Entity Selection and Drawing Information
- Entity Transformations
- Up to 256 Layers
- Background Plotting / Printing
- MAKEPLOT Program
- Printer Support Epson and compatible printers, both 9 and 24 pin. Laser printers, HP LaserJet series, PostScript compatible and Encapsulated PostScript.

The suggested retail price of DynaCADD, on all platforms, is US \$ 995.00.

Germany CRP: (07531) 56265  
Sweden Bremberg: 503 40330  
Spain MAD: (91) 250 9040

England Expressworks: (0252) 726 255  
Finland Komentokeskus: 881 227 741  
Korea Union Systems: (02) 533 6213 / 7

Denmark Nikita: 75 65 37 88  
Italy Studio: (02) 26 14 38 33  
Singapore 2000+: 65 265 3300

- File Transfer HPGL, DMPL and Calcomp (Out), PostScript®, Encapsulated PostScript® (Out), Xerox Ventura IMG Files (Out) GEM® META Files (Out), IFF ILBM, Sculpt 3D, VideoScape, LightWave and Imagine (Out) and DXF 2D/3D (In/Out).

- Vector Font Editor A designer's tool to create and edit high resolution vector fonts. Editing aids include: Bezier curves, B-splines, Unlimited number of vector cut and paste buffers, Rotate, stretch, mirroring horizontally or vertically, move, copy, distort any character or vector. Each font can contain from 1 to 255 characters.
- 100's of additional features



## **DynaCADD®**

Version 2.0

### **AMIGA® Systems Requirements:**

All Amiga systems with a minimum of 1 MByte RAM, OS 1.3 or later. A 68020/30 with at least 2 MBytes of RAM, a math co-processor and a hard drive is recommended.

DynaCADD® is also available for the MS/DOS 80286,386,486. PS/2 and 100% compatibles and the Atari ST/TT. Features may vary between platforms.

DynaCADD DEMO versions are available.

DynaCADD® is a registered trademark of Ditek International. Other computers or software names are the trademarks or tradenames of their respective holders.

Specifications are subject to change without notice.

©1991 Ditek International

### **Ditek International**

2651 John Street, Unit #3 Markham  
Ontario, L3R 2W5 Canada  
Tel (416) 479 1990 Fax (416) 479 1882  
GENie: ISD CompuServe: 76004,2246

# COOL CENTAUR PRODUCTS...

## COLORBURST

### 24/48 BIT GRAPHICS ENGINE

The only true 24-Bit video display  
for all Amigas

- Each and every pixel can be any of 16.8 Million Colors
- Pure, Broadcast Quality RGB Output
- Realtime Image Processing
- Includes 24-Bit Paint Program
- Connects thru Monitor Port to All Amigas
- Compatible with all Amiga Monitors
- High Resolution 768 x 480 pixels (580 PAL)
- Includes 1.5 MB display RAM
- Realtime Horizontal and Vertical Scrolling
- Complex Color Cycling and Video Effects
- All at an Affordable Price

## FLASH SCSI CONTROLLER

8- or 16-Bit NON-DMA SCSI  
Controller for the Amiga 2000  
Series

**NEW!**



The Fastest Controller Available!  
Expandable to 16-Bit NON-DMA  
Uses Zorro II or III slot.  
1 MB ZIP Sockets for user-  
installable RAM up to 8 MB  
Supports Commodore's Rigid Disk  
Block Structure  
8-Bit = 450k/sec transfer rate  
16-Bit = >950K/sec transfer rate

## BLITZ BASIC

The Amiga's fastest BASIC

The ease of BASIC with the speed of Assembly code – Compiled and executable output – Full support for Blits, Sprites, IFF Screens (including HAM), Sampled Sounds, Double-buffered animation and much more!

## Enhanced Unidrive

The Ultimate Drive for your Amiga:

No clicking!

Low Profile Design

Floppy drive port pass-thru

Digital LED track display

Virus Protection switch

On/Off switch

Hardware write-protect switch



## MINIMEGS RAM EXPANSION



Affordable 2 MB External RAM  
Available for Amiga 500 and 1000  
Fully AUTOCONFIG, 100% true FAST RAM  
Compact, low profile design  
Low power consumption  
**A Great Value!**

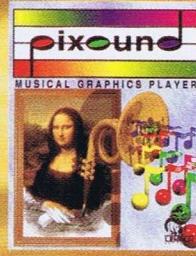
**M.A.S.T.**  
Technical Excellence

# ...FOR A HOT AMIGA SUMMER

## B.A.D. The Ultimate Disk Optimizer

- Make your disks fly with B.A.D.!
- Speed disk access time by up to 500%
- Works with floppies AND hard drives
- Support for Virtual Memory and multiple partitions
- Incredible Workbench and CLI performance
- AmigaDOS 2.0 compatible
- Works with the Fast File System
- The MOST popular Amiga utility ever

**NEW!**  
Version 4!  
B.A.D. got  
better!



## PIXOUND

The Musical Graphics Player  
Transforms Amiga graphics into music. Load any graphic image (or create one using Pixound's dynamic built-in screen generators), then hear it translated into a rich variety of harmonies and melodies using the Amiga's voices, a MIDI keyboard, or both. You've never seen or heard anything like PIXOUND before.

## Boing Optical Mouse

The highest quality, most-accurate mouse for the Amiga. Solid, rugged, sturdy construction, super-smooth action and a TWO-YEAR warranty. Don't settle for cheap imitators. This is the finest mouse available.



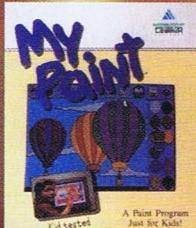
## Mindlink

The hottest, newest, super-powerful modem package

- X-Modem, Y-Modem and Z-Modem protocols.
- Integrated scripting language - create your own modem utilities
- Text Clicking - Just click on a word on the screen to transmit it to another computer!
- Password protection
- Built-in, programmable timer
- Fully multitasking and Workbench 2.0 compatible

## My Paint

Everybody loves My Paint. Designed for kids but fun for everyone. Includes an animated-icon interface, drawing tools, special effects, multiple palettes, digitized sound effects, 28 pictures to color in and much more! Additional Coloring Book disks available. CDTV Version also available



## DCTV: A Guided Tour

This easy-to-follow, comprehensive VHS tutorial will teach you everything you need to know about DCTV! Topics include:

- Installation.
- Using the Video Digitizer.
- Using DCTV with the Video Toaster.
- Using DCTV as a 24-Bit animation display board.

Also includes an interview with DCTV's designer!

**NEW!**



## Imagine: A Guided Tour

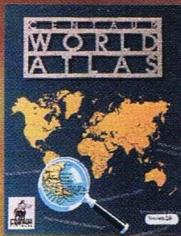
This extensive video tutorial includes segments on object loading and creation, surface attributes, lighting techniques, texture mapping, animation, 12 and 24-bit comparisons and more. A must-have if you're serious about unleashing your imagination with Imagine.

## Professional Techniques for Deluxe Paint III

The best-selling Amiga video ever. Explore cel animation, 3D perspective, special effects, shortcuts and more. Learn how to get the most out of Deluxe Paint III from artist Jeff Bruette and DPaint's creator, Dan Silva.

## World Atlas

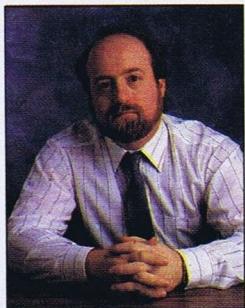
Get detailed information on over 170 countries and all 50 states. Four disks full of maps and facts.



# Centaur Software

4451-B Redondo Beach Blvd. Lawndale, CA 90260

Phone: 213-542-2226 - FAX: 213-542-9998



# HELP KEY

*Lou unravels the mysteries of printer drivers and how to add MS-DOS compatibility to your system.*

By Louis R. Wallace

## DRIVE THAT PRINTER!

**Q:** I have a one-megabyte A500, and I'm planning to buy a printer. Not wanting to run into the problem of getting a printer that isn't supported or quickly becomes discontinued, I looked around at my school and found that the Okidata Microline 320 is used everywhere. Can I use this IBM-style printer, and, if so, do I need a special cable? Or, do I need a printer that is specially designed for use with the Amiga?

B. Taylor  
Decatur, Illinois

**Q:** I own an Amiga 500 with Workbench 1.3, and I have a Panasonic KX-P1180 dot-matrix printer. My problem is that I can't get the printer to output in styles such as the bold, italic or underline that I use in my word processor. Thinking I needed a new printer driver, I opened the Preferences tool and found only two printer drivers, Custom and generic. Where does one get other printer drivers for the Amiga?

R. Keith  
Monroe, North Carolina

**A:** One of the most common misconceptions besetting new Amiga users is that they must buy printers made specifically for the Amiga. Not so! The Amiga is capable of using just about any printer that can be used on an IBM or compatible. With the A500, A2000 and A3000 computers, you just need a standard printer cable. The A1000, however, does require a special cable. It will not work with a standard printer cable, and even hooking one up to the A1000 can damage your computer or printer. Ask your dealer or Commodore for details about the special cable.

Whichever computer you have, you also need a printer driver that is specific to your printer. These drivers must be located in the Workbench DEVS/PRINTERS drawer on your system disk. However, because of space limitations on a standard Workbench disk as it comes from Commodore, the driver you need may not be there. If such is

the case, you can find additional drivers on the EXTRAS disk that came with your computer or AmigaDOS Enhancer package. These printer drivers are in the DEVS/PRINTERS drawer on the Extras 1.3 (or Extras 2.0) disk. To use one of them, just copy it from the Extras disk to your Workbench. You do this from the CLI with a command such as the following:

```
copy "Extras 1.3:devs/printers/EpsonQ" to  
sys:devs/printers
```

This copies the EpsonQ printer driver from the Extras disk to your system or Workbench disk. You then need to load the Preferences program and select the new printer driver. Then save the new Preferences to disk by clicking on the Save option. From this point on, any attempt to print will use the newly selected printer driver.

Below is a list of the drivers you'll find on the 1.3 version of the Extras disk. If your printer is not listed, you can try some of the others. It's always a good bet to check one of the Epson drivers, as many printers will work in Epson mode. In addition, there are a great many printer drivers in the public domain. You can find these in users' group libraries, local or national BBSs, commercial telecommunication networks or even at your local dealer. While these are not official Commodore Amiga printer drivers, in many cases they will work well.

### Extra's 1.3 Printer Drivers

Alphacom Alphapro 101  
Brother HR-15XL  
CalComp ColorMaster  
CalComp ColorMaster2  
Canon PJ-1080A  
CBM MPS1000  
Diablo 630  
Diablo C-150  
Diablo Advantage D25  
EpsonQ  
EpsonX (CBM MPS-1250)  
EpsonXOld  
HP DeskJet

HP LaserJet  
HP PaintJet  
HP ThinkJet  
Howtek Pixelmaster  
ImageWriterII  
Nec Pinwriter  
Okidata 92  
Okidata 2931  
Okimate 20  
Quadram QuadJet  
Qume LetterPro 20  
Toshiba P351C  
Toshiba P351SX  
Xerox 4020

## BRIDGING THE GAP To MS-DOS

**Q:** I'm a new Amiga owner, and I'm extraordinarily pleased with this wonderful machine. The only problem I have is that in school we use a lot of MS-DOS-based machines. I would like to be able to bring my work home and finish it, but of course I can't run MS-DOS software on an Amiga. I know it's possible to add an emulator to do so, but I don't know what is available. Can you help?

W. Berry  
San Francisco, California

**A:** There are a number of different ways to add MS-DOS compatibility to your Amiga system, with the approach you take somewhat dependent on the model of Amiga you have. Commodore makes two different MS-DOS emulator cards, called Bridgeboards, for the A2000, A2500 and A3000 computers. One of the cards (the A2088D, \$499) is an XT-compatible; the other (the A2286, \$799) is an AT. Both run in a window on the Amiga and emulate the PC's CGA display mode. A500s and A2000s can make use of the ATOnce (\$398), an AT card that is inserted between the 68000 CPU and the CPU socket. Another A500 PC hardware emulator is the Power PC (\$525) board (originally distributed by Pulsar), but this product is now somewhat hard to find. ■

# SAVE \$5 NOW!

SUGGESTED RETAIL:  
~~\$24.95~~  
now only  
**\$19.95**  
ea.



FOLLOW-UP TO  
OUR  
BEST SELLER!

## AMIGA ANIMATION VOLUME TWO!

*...Selected from hundreds of incredible works.*

In response to the clamor for another videotape featuring Amiga animations, the Editorial Staff of AmigaWorld has created ANIMATION VIDEO, VOLUME TWO. AmigaWorld sponsored another contest soliciting entries from talented Amiga animators. The Editors sifted through hundreds of submissions and countless hours of animation clips to select the very best in animated art. The result is a videotape with scintillating animations, showcasing the efforts and talents of Amiga enthusiasts.

ANIMATION VIDEO, VOLUME ONE was a best-selling video, containing commercially broadcast and award-winning work. The second volume is even more exciting, due to such innovative animation programs as Sculpt-Animate 4D, LightWave 3D, Turbo Silver, Imagine and Deluxe Paint III. The animations on this video will impress you with technical brilliance and delight you with imaginative plots. You'll be thoroughly entertained as you absorb new animation techniques and ideas. Whether you just brought your Amiga home from the store or you have created your own animation art before, you'll want to add ANIMATION VIDEO, VOLUME TWO to your Amiga video collection!

# 1-800-343-0728

CALL TOLL FREE or mail this coupon.

## YES!

I am eager to become an expert! Please send me the following videos:

- Animation Video, Vol. Two... \$24.95 **\$19.95**
- Animation Video, Vol. One ... \$19.95 **\$14.95**
- Hot Rod Your Amiga..... \$24.95 **\$19.95**
- NewTek's Video Toaster™ .... \$24.95 **\$19.95**
- Desktop Video, Vol. One ..... \$29.95 **\$24.95**
- Amiga Graphics, Vol. One ... \$29.95 **\$24.95**
- The Musical Amiga ..... \$29.95 **\$24.95**
- The Amiga Primer ..... \$29.95 **\$24.95**

Check/Money Order  MasterCard  VISA  AmEx

Discover

Make checks payable to TechMedia Video.

Please include \$2.95 shipping & handling for one video, \$5.00 for two or more.

Total Amt. \$ \_\_\_\_\_

Acct. # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

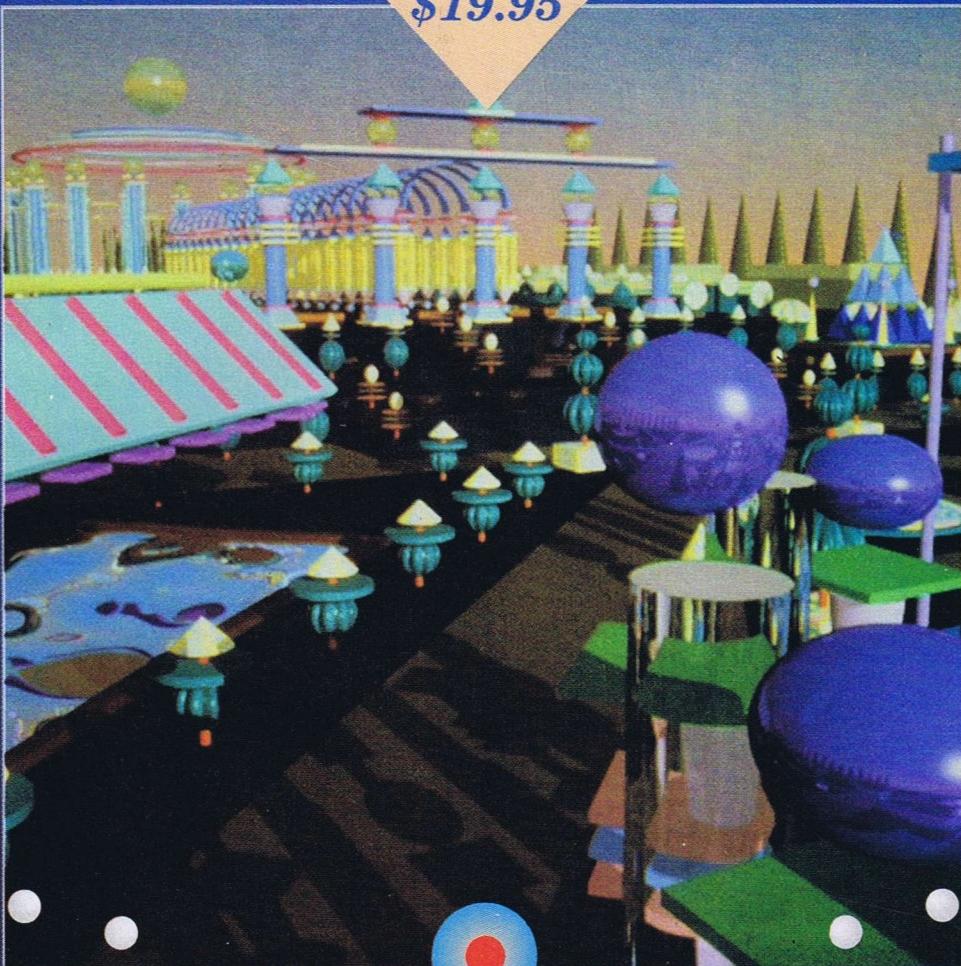
**TECHMEDIA  
VIDEO**

AVID991

PO Box 802, 80 Elm Street, Peterborough, NH 03458 603-924-0100  
An IDG Communications Company

Available in VHS only. Please allow 4-6 weeks for delivery. Foreign orders: add \$7.50 for airmail delivery; \$18 for two or more videos. Payment must be made in U.S. funds drawn on U.S. banks. TechMedia Video is the licensed North American distributor of AmigaWorld Videos. © 1989, 1990, 1991 by Razza Video USA. All Rights Reserved. Amiga is a registered trademark of Commodore Business Machines, Inc. All other product names used herein are trademarks of their respective holders.

Only  
\$19.95



TECHMEDIA VIDEO  
presents  
**THE MIND'S EYE**  
A COMPUTER ANIMATION  
ODDYSSEY

MIRAMAR®



A compelling look at the creation of the universe utilizing the talents of the world's top computer animation artists with music composed by James Reynolds. Forty minutes of visually powerful imagery from over 300 of the leading talents in the field. The definitive video for computer animation enthusiasts!

**1-800-343-0728**

**YES!** Please send \_\_\_\_\_  
copies of THE MIND'S EYE  
Only \$19.95

Acct. # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

**CALL TOLL FREE or mail this coupon.**

Check/Money Order  MasterCard  VISA  AmEx

*Make checks payable to TechMedia Video.*

Discover

Please include \$3.00 shipping & handling for each video ordered.

Total Amt. \$ \_\_\_\_\_

**TECHMEDIA**  
**V I D E O**

P.O. Box 802, 80 Elm Street, Peterborough, NH 03458 603-924-0100  
An IDG Communications Company

Available in VHS only. Please allow 4-6 weeks for delivery. Foreign Orders, add \$7.50 for airmail delivery; \$18 for two or more videos. Payment must be made in U.S. funds drawn on U.S. banks.

© MCMXC Miramar Images, Inc.

**MD991** Photo courtesy of Hewlett Packard

Go ahead and pull out our special 8-page tear-out Ad!

## The Best Service and Prices for your Creative Computer™



### The Creative Computers Low-Price Guarantee.

Creative Computers is the service and low-price leader and the largest Amiga mail-order company. Check out the prices in this ad, then in the unlikely event that you find a lower price anywhere else in this magazine, we'll beat it!

#### THE CREATIVE COMPUTERS DIRECT ADVANTAGE MASTERCARD™

##### USE YOUR DIRECT ADVANTAGE GOLD MASTERCARD™ ANYWHERE AND EARN DOLLARS GOOD ON EVERYTHING WE SELL!

- 1st Year Membership Free! Save \$40
- Free Buyer Insurance
- The Direct Advantage MasterCard's Purchase Assurance protects most items you buy with your card against loss, theft, fire or accidental breakage for a full 90 days from the date of purchase.
- Double Manufacturer's Warranty!
- You'll automatically receive Direct Advantage MasterCard's Extended Warranty on almost every purchase, thereby doubling the manufacturer's warranty up to a maximum of one additional year.
- Bonus Points!
- Now, every dollar you spend for business or personal use with your Direct Advantage Gold MasterCard, earns points good toward the purchase of everything we sell - one penny for every two dollars you spend. It makes no difference where you use your card or what you buy - before you know it, you'll have thousands of points to redeem on the catalog item of your choice!
- Redeem points with a phone call!
- One quick call to the Direct Advantage customer service and redemption center is all it takes to turn your points into immediate savings on everything we sell. What's more, you'll receive a quarterly point statement to keep you up-to-date on the total points you've earned and used, and cardholders exclusive information on specials that we run.
- High Credit Limit
- Every Direct Advantage Gold MasterCard holder automatically receives a line of credit of up to \$15,000!

Take advantage of this offer today!

Call 1-800-872-8882 to apply!

#### ORDER BY PHONE -OR- MAIL IN THIS FORM

1. Call for most current prices and shipping rates.
2. Mail this order form to:  
CREATIVE COMPUTERS at: 4453 Redondo Beach Blvd., Lawndale, CA 90260
3. Credit card orders only shipped to billing address.

Name _____			
Address _____			
City _____ State _____ Zip _____			
Country _____			
Day Phone# ( ) _____ Night Phone# ( ) _____			
QTY.	PRODUCT NAME	UNIT PRICE	TOTAL
8.25% SALES TAX (CA. RES.ONLY)			
SHIPPING METHOD: (Call for rates)		SHIPPING	
<input type="checkbox"/> UPS Ground	<input type="checkbox"/> Airborne Express	TOTAL	
<input type="checkbox"/> DHL -International orders			
<input type="checkbox"/> Other			
OFFER CODE: P1940111			

METHOD OF PAYMENT:  Check  Money Order  Visa  MasterCard  
 American Express  Discover

CREDIT CARD USERS ONLY:  
Credit Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_ / \_\_\_\_\_  
Signature \_\_\_\_\_

OFFER CODE: P1940111

### Announcing the Creative Computers Exclusive Money Back Guarantee Program

(CC-MBG)

Now and through Aug. 31, 1991, when you purchase any accelerators, floppy drives, memory expansions, hard drives and hard drive controllers or Newtek's Video Toaster from Creative Computers, you are protected by a full 30-day, No-Questions-Asked Money Back Guarantee!

Are you in the market for a Video Toaster but don't know if it will work right with your set-up? Or are you waiting for your Amiga to compute but don't know what an accelerator will mean in practical terms to you? You need not wait any longer. Just buy it from us, and if you don't like it, send it back for a full refund!

CC-MBG rules: Limited-time offer only applies to above listed categories only. You must call Customer Service to obtain a Return Authorization number before sending the item(s) back. The item(s) must be in original condition and in original packaging. No damaged items will be accepted. Refunds issued within 14 days of receipt of the returned item(s). Refund is limited to \$3,000 per customer.

One of our friendly customer service representatives.



Creative Summer Sale

#### OUR POLICIES

**CUSTOMER SERVICE:** For tech support call 213-542-2232 from 11 a.m. to 7 p.m. PST. Call for all other shipping information. Educational, corporate and aerospace purchases orders accepted. No surcharge for Visa/MasterCard; 4% surcharge for American Express; 1% surcharge for Discover.

**RETURN POLICY:** Call Customer Service at (213) 214-0000 for return authorization. All returns without authorization number (RMA#) will be refused. Returned products must be in original condition and packaging and must be sent back within 30 days of our invoice date. No refunds, please. Defective product exchanges only. We make no guarantees for product performance. Exchanges with unlike products are at our option and subject to a 20% re-stocking fee.

**CONDITIONS:** Prices and availability of products are subject to change without notice.

**MAIL-IN ORDERS:** Send money orders or cashiers check for fastest service. Personal checks - up to 10 days to clear. Include: Name, Address and telephone number (no P.O. Boxes, please). If ordering by credit card include expiration date and billing address. Call for exact shipping rates.

**INTERNATIONAL TOLL FREE ORDERING POLICIES:** For Canada, FPO, APO - Minimum order \$50. All other countries: minimum order \$100. For VISA and MasterCard orders you must FAX or mail a signed photocopy of your credit card - front and back. Please have your credit card number ready before calling.

**INTERNATIONAL PHONE NUMBERS:** Orders only please. Canada 1-800-548-2512; United Kingdom 0800-88-1178; France 19-0580-1088; Australia 0014-800-125-712; Switzerland 046-05-3420

**\*PRICE GUARANTEE:** U.S. Only. Applies to all merchandise advertised by all authorized dealers except merchandise on sale. We will give you our "delivered" price lower than the other dealer's "delivered" price.

Credit Cards Accepted



Oversight Shipping via:



OFFER VALID August 1, 1991 - August 31, 1991



**U.S. ORDERS ONLY:  
800-872-8882**

**CANADA: 1-800-548-2512**

**CUSTOMER SERVICE OR**

**213-214-0000**

**ORDER STATUS**

4453 Redondo Beach Blvd., Lawndale, CA 90260 - Mon-Sat 8-6 PST - FAX: 213-214-0932

### ACCELERATORS

MEGA MIDGET RACER 25mhz ..... 639.00  
MEGA MIDGET RACER 33mhz ..... 739.00

### AUDIO HARDWARE

AMAS MIDI SAMPLER ..... 128.00  
CMI MIDI 1 (EXT) ..... 56.95  
ECE MIDI 1000 ..... 49.95  
ECE MIDI PLUS ..... 49.95  
MIDI GOLD 500 ..... 59.95  
MIDI GOLD INSIDER ..... 64.95  
PERFECT SOUND 500/2000 ..... 69.95  
SOUNDMASTER ..... 139.00

### COMMODORE

A10 STEREO SPEAKERS ..... 33.95  
A2080 ARCNET LAN ..... 198.00  
A2065 ETHERNET LAN ..... 289.00  
A2091 AUTOBOOT CNTRLR ..... 149.00  
A2232 MULTI-SERIAL AD ..... 298.00  
A2300 INT GENLOCK2000 ..... 239.00  
A2320 DISPLAY ENHANCER ..... 238.00  
A520 COMP. ADAPTER ..... 41.85  
A2000 DRIVE REPLACMT ..... 99.95

### FLOPPY DRIVES

AE HIGH DENSITY DRIVE ..... 184.00  
ROCTEC 5.25" FLOPPY ..... 159.00  
ROCTEC SLIM EXT. 3.5" ..... 94.95

### MEMORY EXPANSION

ADRAM 505 INT 512K ..... 59.95  
ADRAM 540 0/4 MEG INT ..... 99.00  
ADRAM 5600 2 MEG A540 ..... CALL  
BASEBOARD A500 0/4MB ..... 111.00  
MINIMEGS A1000 2MB ..... 259.00  
MINIMEGS A500 2MB ..... 249.00  
SUPRARAM 500 1/2 MEG ..... 59.95

### MODEMS

BAUD BANDIT MODEM ..... 105.00  
BAUD BANDIT MODEM LS ..... 169.00  
GALAXY APOLLO 9600 ..... 449.00  
SUPRA 2400 BAUD MODEM ..... 89.00  
SUPRA 2400 BAUD MNP ..... 155.00  
SUPRA 2400 BDMNP+ ..... 165.00  
SUPRA 2400 INT. MODEM ..... 119.00  
SUPRA 9600 V.32 ..... 549.00

### MONITORS

NEC MULTISYNC 3D ..... 699.00  
NEC MULTISYNC IIA ..... 650.00  
SEIKO 1440 MULTISYNC ..... 599.00  
SONY 1304 MULTISYNC ..... 779.00

### PRINTERS

CITIZEN GSX140 24 PIN ..... 329.00  
CITIZEN GSX200 9 PIN ..... 185.00

LASERJET II PRINTER ..... CALL

QMS PS-410 LASER ..... 2495.00

STAR NX1000 II PRINTER ..... 169.00

STAR NX1020 RAINBOW ..... 219.00

MAGNI 4004 ..... 1049.00

MAGNI 4004S ..... 1049.00

MAGNI GENLOCK ..... 189.00

MUNIGEN PAL GENLOCK ..... 239.00

NERIKI GENLOCK ..... 1799.00

NUCLEAS PERSONAL SFC ..... 399.00

PANASONIC WV1410 ..... 189.00

PANASONIC WV1500X ..... 319.00

PERSONAL TBC ..... CALL

SHARP JX300 SCANNER ..... 2095.00

SHARP JX450 SCANNER ..... 5195.00

SUPERGEN 2000S ..... 1350.00

SUPERGEN 2000 ..... 1350.00

### VIDEO HARDWARE

AMIGEN GENLOCK ..... 97.95  
ASDG EPSON DRIVER ..... 135.00  
BCD 5000 ..... 1985.00  
COLOR SPLITTER ..... 109.00  
DENISE EXTENDER BUS ..... 85.00  
DIGIVIEW GOLD V4.0 ..... 119.00  
DIGIVIEW GOLD 4.0 PAL ..... 134.00  
EPSON ES-300C SCANNER ..... 1395.00  
FLICK. FIX TO GENLOCK ..... 37.95

FICKER FIXER ..... 249.00  
FICKER FIXER PAL ..... 300.00

FRAMEGRABBER ..... 449.00

FRAMEGRAB PAL VERS ..... 659.00

FRAMEGRAB/256 GRAY ..... 629.00

FRAMEGRAB/256 PAL ..... 659.00

HAM-E PLUS ..... 399.00

LENS 16MM NO IRIS ..... 18.85

LENS 16MM W/IRIS ..... 53.95

LIVE! 1000 ..... 249.00

LIVE! 2000 ..... 349.00

LIVE! 500 ..... 308.00

MAGNI 4004 ..... 1049.00

MAGNI 4004S ..... 1049.00

MAGNI GENLOCK ..... 189.00

MUNIGEN PAL GENLOCK ..... 239.00

NERIKI GENLOCK ..... 1799.00

NUCLEAS PERSONAL SFC ..... 399.00

PANASONIC WV1410 ..... 189.00

PANASONIC WV1500X ..... 319.00

PERSONAL TBC ..... CALL

SHARP JX300 SCANNER ..... 2095.00

SHARP JX450 SCANNER ..... 5195.00

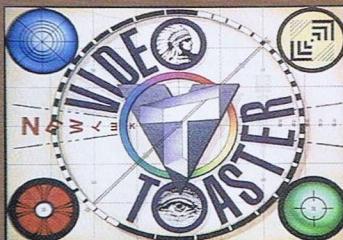
SUPERGEN 2000S ..... 1350.00

### ACCESSORIES

#### DISKETTES/DISK ACCESSORIES

BANX DISKETTE BOX ..... 14.95
DISKETTES, 50 PACK ..... 44.00
SONY DISK 10 PACK ..... 12.95
SONY COLOR DISKS 10 PACK ..... 13.95
SONY DISK 5.25" 10 PK ..... 7.95
SONY DISK 5.25" DSHD ..... 11.95
SKETCH MASTER. 12X18 ..... 619.00
SONY DISK DSHD 5 PACK ..... 9.95
DOUBLE TALK A2000 ..... 399.00
WOODEN DISKBOX 2 DRAWER ..... 45.00
WOODEN DISKBOX 3 DRAWER ..... 55.00
WOODEN DISKBOX 4 DRAWER ..... 65.00

## Newtek Video Toaster



Digital Video Effects!

Genlock - Frame Grabber!

24-bit Paint and Rendering!

3D Modeling and Animation!

**\$1399<sup>00</sup>!**

## DCTV



## From Digital Creations

Full NTSC Color Display and Digitizer.

**\$389<sup>00</sup>**



Epson Scanner \$1199<sup>00</sup>

600 DPI, 24 Bit

full page color scanner

ES-300C

With ASDG Driver Bundle \$1299<sup>00</sup>

## COLORBURST

24/48 Bit Graphics/  
Video Engine

16.8 Million Colors  
Pure RGB output

WORKS WITH  
ALL Amigas  
and monitors

**\$689<sup>00</sup>**

**HOT!  
NEW!**

## Seiko CM-1440



• 14" Super fine pitch Trinitron

• Resolution up to 1024 x 768

• 25mm dot pitch

• Anti-glare silica coating

• Works on all Amigas

• Includes a FREE cable for the A3000

**\$579<sup>00</sup>**

## AMTRAC



Uses only 1/3 the desk space of a mouse

High Resolution for precision input

Requires no cleaning

Drag lock feature

A professional trackball for all Amigas

**\$64<sup>95</sup>**



## Roctec

New, reliable drive for the Amiga.  
Super slim, less than 1-inch high.  
Low power consumption.  
Drive pass-thru.

**\$94<sup>95</sup>**

OFFER CODE: P1940111

OFFER VALID August 1, 1991 - August 31, 1991

Best International  
freight service and  
low rates via:



# Overnight International Shipping Including Canada as low as \$15

Most rates cheaper than Express Mail at the Post Office!

Creative  
Summer Sale

## DUST COVERS

COVER UPS A1084 MON	6.95
COVER UPS A1950 MON	6.95
COVER UPS A2000 CPU	5.95
COVER UPS A2000 KEYBD	2.99
COVER UPS A2000 SYSTM	10.95
COVER UPS A3000 CPU	5.95
COVER UPS A3000/A1950	10.95
COVER UPS A500 CPU	5.95
DUST COVER DESKJET	28.95
DUST COVER LASERJET III	25.95
DUST COVER LASERJET HP	19.95
SAFESKIN / A1000	17.95
SAFESKIN / A2000	17.95
SAFESKIN / A3000	17.95
SAFESKIN / A500	17.95

## MICE

A1352 MOUSE	89.95
BEETLE MOUSE(VAR. COLORS)	39.95
BOING OPTICAL MOUSE	CALL
GOLDEN IMAGE MOUSE	39.95
MOUSE MATS	6.95

## JOYSTICKS

BOSS JOYSTICK	14.95
ERGO STICK	17.95
FREEDOM SPEEDKING	14.95
GRAVIS CLEAR JOYSTICK	35.95
GRAVIS MOUSESTICK	64.95
GRAVIS SWITCH JOYSTICK	32.49
LIGHT GUN PHASAR	32.49
MAXX YOKE JOYSTICK	79.95
POWERPLAYERS JOYSTICK	14.95
SLIM STIK JOYSTICK	7.95
TAC-2 JOYSTICK	10.95
WICO 3-WAY JOYSTICK	22.95
WICO BAT HANDLE STICK	18.95
WICO JOYSTICK	47.95

## PRINTER ACCESSORIES

DATA SWITCH 2-WAY	13.95
DATA SWITCH 4-WAY	22.95
DESKJET BLK CARTRIDGE	16.95
DESKJET FULL COLOR KIT	34.95

## JOYSTICKS

DESKJET REFILL BLACK	13.95
DESKJET REFILL BLUE	13.95
DESKJET REFILL BROWN	13.95
DESKJET REFILL GOLD	13.95
DESKJET REFILL RED	13.95
DESKJET REFLN YELLOW	13.95
DESKJET STAND/ORGANIZER	99.00
PAINTJET BLK CARTRIDGE	25.95
PAINTJET COLOR CARTRIDGE	29.95
PAINTJET CUT PAPER	17.95
PAINTJET Z-FOLD PAPER	17.95
STAR NX2410 RIBBON	7.49
STAR RAINBOW RIBBON	8.95

## MISC ACCESSORIES

AMITOTE A2000	69.95
AMITOTE A500	69.95
AMITOTE A1084	69.95
AUTO DROID	50.95
CLEANING KIT SMALL	5.95
CLEANING KIT LARGE	12.95
COMPUTER SERVICE KIT	18.95
COPY/CAMERA STAND	59.95
DIGI DROID	87.95

## HOT GRAPHICS SOFTWARE

3D TEXT ANIMATOR	29.95
ANIMAGIC	87.95
BUDUO SYS/DPaint III	29.95
DELUXE PAINT III	99.95
DIGI PAINT 3	54.95
DIGIMATE III	23.95
DISNEY ANIMATION	79.95
MACRO PAINT	81.95
PHOTON PAINT 2.0	99.95
SCULPT ANIMATE 4-D	299.00
SCULPT ANIMATE 4-D JR	89.95
SPECTRACOLOR	64.95
TURBO SILVER 3.0	69.00
VIDEOSCAPE 3D V2.0	119.00
ART DEPARTMENT	52.95
MONITOR STAND A500	27.95
PERFECT SOUND ADAPTOR	10.95
X-SPECS 3D	94.95
BROADCAST TITLER II	229.00
BROADCAST TITLER II PAL	239.00
CINELINK FOR IMAGELINK	175.00
CREDIT TEXT SCROLLER	23.95
DELUXE VID/PHOTO LAB BNDL	99.95
INVISION PLUS	179.00
NERIKI VIDEO TOOLS ON TAP	52.95
PERFORMER (ELAN)	97.95
PHOTON TRANSPORT CONT	195.95
PHOTON VIDEO EDLP	299.00
PIXIMATE	40.95
PRO VIDEO PLUS PAL	199.95
PRO VIDEO POST	199.00
PRO VIDEO POST PAL	199.00
SCALA	249.00
SCREEN MAKER	239.00
SYQUEST CARTRIDGE	299.00
SCREEN MAKER STARTER SET	34.95
SHOWMAKER	215.00
TGALINK FOR IMAGELINK	175.00
TV GRAPHICS	29.95
TV GRAPHICS 2	29.95
TVSHOW	58.95
TVTEXT PROFESSIONAL	99.95

## 3D RENDERING

3D PROFESSIONAL	199.00
3D PROFESSIONAL PAL	199.00
DIGITAL LANDSCAPE	73.95
IMAGINE	199.00
MAP MASTER	45.95
PRO TEXTURES	38.95
SURFACE MASTER	25.95
IMAGINE BUDDY SYSTEM	29.95
INTERCHANGE	29.95
INTERCHANGE TSLV MODL	18.95
MAP MASTER FOR LIGHTWAVE	84.95
MATHVISION	119.00
MODELER 3D	64.95
PIXEL 3D AUTOTRACING	52.95
SCAPE MAKER	24.95
SCENE GENERATOR	29.95

## GVP Series II Accelerators

New single-board design on 22 & 33 Mhz

These new Series II accelerators have a  
built-in GVP SCSI controller

Now holds up to 32 megs of ram!\*



22Mhz	\$845 <sup>00</sup>
33Mhz	\$1585 <sup>00</sup>
50Mhz	\$2298 <sup>00</sup>

\*50 Mhz board, others hold less

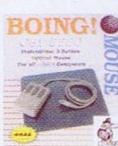
## Centaur Hardware

### Minimegs

Affordable 2 MB External RAM for 500 and 1000  
Full AUTOCONFIG  
A1000 ..... \$259<sup>00</sup>  
A500 ..... \$249<sup>00</sup>



**Flash SCSI Supercharger** ..... CALL  
Fastest 8- or 16-BIT NON-DMA



**Boing! Mouse**  
Best-selling optical mouse for the Amiga with Free D.U.D.E. software (a \$39.95 value).  
\$79.95

### Enhanced Unidrive



No-click, low-profile floppy with LED track display and virus protection switch  
\$124<sup>95</sup>

These Economy boards do not have an MMU

### CSA

New, lower priced Mega-Midget Racers!

25 Mhz	\$488 <sup>00</sup>
33 Mhz	\$558 <sup>00</sup>
Ram Board with 2mb	\$409 <sup>00</sup>
Ram Board with 4mb	\$779 <sup>00</sup>
68882 - 25 Mhz	\$189 <sup>00</sup>

## The ICD Advantage

### AdSpeed™

\$209<sup>00</sup>

Best overall performance of any accelerator in its price range.

### Flicker Free Video™

\$295<sup>00</sup>

Eliminates interlace flicker for any Amiga computer.

### Novia 20i™

\$549<sup>00</sup>

The smallest hard drive and interface in the world for your Amiga 500. Fits internally.

### Novia 60i™

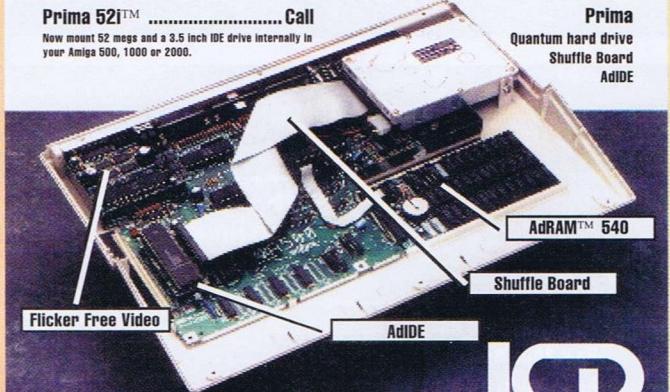
Call

Now you can have the Novia with a 60 meg 2.5 inch hard drive.

### Prima 52i™

Call

New mount 52 megs and a 3.5 inch IDE drive internally in your Amiga 500, 1000 or 2000.



## Great Valley Products Series II for the Amiga 500

40mb	\$477 <sup>00</sup>
52mb	\$577 <sup>00</sup>
80mb	\$628 <sup>00</sup>
105mb	\$808 <sup>00</sup>

OFFER CODE: P1940111

OFFER VALID August 1, 1991 - August 31, 1991



**U.S. ORDERS ONLY:  
800-872-8882**

**CANADA: 1-800-548-2512**

**CUSTOMER SERVICE OR  
213-214-0000  
ORDER STATUS**

4453 Redondo Beach Blvd., Lawndale, CA 90260 - Mon-Sat 8-6 PST - FAX: 213-214-0932

**SCULPT 3DXL .....** 109.00    **VINTAGE AIRCRAFT .....** 25.95  
**VISTA 1.2 .....** 37.95    **WOODLAND .....** 25.95

### CLIP ART

**VISTA PAL .....** 58.95  
**VISTA PROFESSIONAL .....** 87.95  
**GRAND CANYON 1 .....** 48.95    **AIRCRAFT PICS .....** 31.95  
**GRAND CANYON 2 .....** 48.95    **COLOR CLIP ART VOL #1-3 (EA) .....** 17.95  
**JACKSON HOLE 1 .....** 48.95    **CLIP ART #1-8 (EACH) .....** 12.95  
**SCAPES CALIFORNIA #1 .....** 48.95    **ECLIPS PROFESSIONAL .....** 60.95  
**SCAPES MARS .....** 48.95    **ECLIPS PROFESSIONAL II .....** 64.95  
**WESTERN U.S. .....** 48.95    **PROF. PAGE STRUCTURED .....** 38.95  
**WYOMING 1 .....** 48.95    **SOFTCLIPS: 1-4 (EA) .....** 44.95  
**WYOMING 2 .....** 48.95    **ANY TWO SOFTCLIPS .....** 85.00  
**MAP PICS - WORLD .....** 37.95    **ALL FOUR SOFTCLIPS .....** 160.00  
**MAP FILLS .....** 17.95    **SUPER CLIPS 1-3 (EACH) .....** 18.95

### FONTS

**(SPECIFY SCULPT/TSILVER/VSCAPE)**  
**AIRSHIPS OF THE 20TH CENT .....** 23.95  
**ARCHITECTURE .....** 22.95  
**DINOSAUR .....** 25.95  
**FUTURE .....** 22.95  
**HUMAN .....** 22.95  
**INTERIORS .....** 22.95  
**MICROBOTS .....** 22.95  
**NY CITY ICONS .....** 25.95  
**SPACE .....** 25.95

### DESIGN DISKS

**GOLD DISK DESIGNER FONT .....** 34.95    **AUTOSCRIPT .....** 81.95  
**GOLD DISK PUBLISHER FONT .....** 34.95    **FRACIAL PRO .....** 50.95  
**GOLD DISK VIDEO FONT .....** 34.95    **FRAMEGRABBER V2 SFTWR .....** 58.95

**KARA ANIMFONTS 1 .....** 28.95    **IMAGE LINK .....** 119.00  
**KARA ANIMFONTS 2 .....** 28.95    **PRO/MOTION .....** 58.95  
**KARA ANIMFONTS 3 .....** 28.95    **RESEP .....** 51.95

### DRAWING/CAD

**KARA FONTS HEADLINES .....** 44.95    **DECKBUILDERS CAD .....** 59.95  
**KARA FONTS HEADLINES 2 .....** 38.95    **DYNA CADD .....** 728.00  
**KARA FONTS SUBHEAD .....** 38.95    **FLO FLOORPLAN CNSTRCT .....** 29.95  
**KARA STARFIELDS .....** 34.95    **HOMEBUILDERS CAD 2.0 .....** 124.00  
**KARA TOASTER FONTS VOL 1 .....** 62.95    **MASTERPIECE FONTS .....** 158.00  
**KARA TOASTER FONTS VOL 2 .....** 62.95    **MASTERPIECE TOASTER FONTS .....** 69.95  
**MASTERPIECE FONTS .....** 158.00    **PAGESTREAM FORMS .....** 26.95  
**PAGESTREAM PLUS PACK .....** 48.95    **PELICAN PRESS .....** 64.95  
**PAGESTRM. FONTS PK. (4 SETS) .....** 48.95    **PRINTMASTER PLUS .....** 25.95  
**PROWRITE PRO FONTS VOL I .....** 22.95    **PROFESSIONAL DRAW .....** 129.00  
**PROWRITE PRO FONTS VOL II .....** 22.95    **PROFESSIONAL PAGE 2.0 .....** 185.00  
**PROF. FONT LIBRARY .....** 48.95    **PROF. PAGE TEMPLATES .....** 35.95  
**PROF. PAGE OUTLINE CG .....** 128.00    **PROVECTOR .....** 189.00

### MISC. GRAPHICS

**ACAD TRANSLATOR .....** 139.95

**XSHELL .....** 124.00    **DR. T'S COPYIST APPRENTICE .....** 75.95  
**DESKTOP PUBLISHING**

**AWARD MAKER PLUS .....** 32.49    **DR. T'S COPYIST DTP .....** 180.00  
**DR. T'S KCS 3.0 .....** 159.00    **DR. T'S KCS LEVEL II .....** 224.00

**DESIGN WORKS .....** 79.95    **DR. T'S KCS LEVEL II 3.5 .....** 228.00  
**DRAW 4D .....** 164.00    **DR. T'S KCS/COPYIST .....** 219.00

**PAGESTREAM 2.1 .....** 179.00    **DR. T'S MT-32 ED/LIBRARIAN .....** 87.95

**PAGESTREAM FORMS .....** 26.95    **MASTER TRACKS PRO .....** 259.00

**PELICAN PRESS .....** 64.95    **MUSIC X .....** 89.95

**PRINTMASTER PLUS .....** 25.95    **SONIX .....** 51.95

**PROFESSIONAL DRAW .....** 129.00    **SOUND QUEST/MIDIQUEST .....** 148.00

**PROFESSIONAL PAGE 2.0 .....** 185.00    **SOUNTRAX VOL 1 .....** 14.95

**PROF. PAGE TEMPLATES .....** 35.95    **SOUNTRAX VOL 2 .....** 14.95

**PROVECTOR .....** 189.00    **TIGER CUB .....** 58.95

### MUSIC SOFTWARE

**BARS AND PIPES .....** 139.00    **TRAX MIDI STUDIO .....** 58.95

**BARS AND PIPES PROF. .....** 238.00

**BARS AND PIPES MULTIMEDIA .....** 34.95

**BARS AND PIPES MUSICBOX A .....** 34.95

**BARS AND PIPES MUSICBOX B .....** 34.95

**BARS AND PIPES INT. SOUNDS .....** 34.95

**BARS AND PIPES RULES .....** 35.95

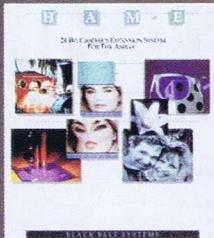
**C-ZAR .....** 9.95

### SAMPLER/EDITOR SOFTWARE

**AUDIOMASTER III .....** 64.95

**AUDITION .....** 64.95

## HAM-E Plus



**\$399.00**

- Paint, render, convert and image processing software
- 18/24-Bit "pure" modes
- 256/512 color register modes
- RGB pass through
- Screen overlay/underlay
- Screens pull up/down & go front/back
- View with any IFF Viewer
- Animate via ANIM or Page Flipping

## Hard Drive Specials

### Controllers

**GVP Series II - Non Ram Cap. .... \$159.00**

**GVP Series II - Up to 8 megs .... \$199.00**

**ICD AdSCSI 2000 .....** \$129.00

**ICD AdSCSI 2080 .....** \$199.00

**IVS TrumpCard 2000 Prof. .... \$199.00**

**IVS TrumpCard 500 Prof. .... \$259.00**

**Supra WordSync .....** \$109.00

**Dataflyer 2000 .....** \$89.00

**Dataflyer 500 .....** \$179.00

**Nexus HC 8/0 .....** \$229.00

### Bare Drives

**Quantum 52mb LPS .....** \$233.00

**Quantum 105 LPS .....** \$377.00

**Quantum 170 .....** \$618.00

**Quantum 210 .....** \$698.00



**Supra Corporation**



### SupraRam 2000

**2/8mb Board .... \$169.00**

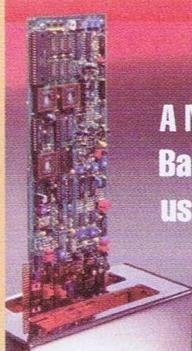
**SupraRam 2000 4mb RAM .....** 249.00

**SupraRam 2000 6mb RAM .....** 320.00

**SupraRam 2000 8mb RAM .....** 399.00

**SupraRam 500 512k .....** 59.95

Due to industry fluctuation, RAM prices are subject to change without notice.



## DPS Personal TBC

**A New Internal Infinite Window Time Base Corrector with Genlocking for use with the Newtek Video Toaster!**

**For the Amazing Low Price of:**

**\$779.00**

### HP Printers



**DeskJet 500 .....** 469.00

**LaserJet III .....** 1499.00

**LaserJet IIP .....** 799.00

**PaintJet .....** 949.00

**PaintJet XL .....** 2049.00

### Bodega Bay



Replacement case for

A500 with 200 watt

power supply, 4 A2000

slots, 2 5.25" drive

bays and a 3.5" hard

drive mounting area

**\$328.00**

### SoundMaster

**High Speed Digital Audio Sampler. Includes AudioMaster 3.**

**\$139.00**

OFFER CODE: P1940111

OFFER VALID August 1, 1991 - August 31, 1991

# Educational, Corporate and Aerospace purchase orders accepted. Call (213) 542-2292 for details.

USE OUR TOLL-FREE INTERNATIONAL PHONE LINES

Australia 0014-800-125-712; Canada 1-800-548-2512; Denmark 0434-0297; France 19-0590-1099; Italy 1678-74086;  
Japan 0031-11-1351; Netherlands 06-022-8613; Norway 050-12029; Switzerland 046-05-3420; United Kingdom 0800-89-1178.

Creative  
Summer Sale

## UTILITY SOFTWARE

### MISC. UTILITIES

AMI ALIGNMENT SYSTEM .....	29.95
B.A.D. DISK OPTIMIZER V4.0 .....	29.95
CROSS DOS .....	25.95
CGYNUSED PROF. REL. 2 .....	58.95
DISK LABELER .....	22.95
DISK MECHANIC, THE .....	52.95
DISK TO DISK .....	29.95
DISKMASTER .....	29.95
DOCTOR AMI .....	29.95
DOS TO DOS .....	32.49
FACC II .....	21.95
MAC 2 DOS .....	80.95
MASTERING CLI .....	25.95
POWER PACKER PROFESSIONAL .....	17.95
SCANNERY .....	195.00
VO REC ONE .....	117.00
W SHELL .....	31.95
WORKBENCH 1.3 .....	19.95
<b>BACKUP UTILITIES</b>	
BYTE 'N' BACK BACKUP .....	40.95

## PROGRAMMING

### AC BASIC .....

### AC FORTAN 77 .....

### AC FORTRAN .....

### ADAPT 680 X 0 .....

### AMIGA LOGO .....

### AREXX .....

### AZTEC C COMPILER .....

### AZTEC C PROFESSIONAL .....

### BENCHMARK MODULA-2 .....

### BENCHMARK SOURCE LVL .....

### CAPE 68K ASSEM 2.5 .....

### INNOVATOLS I .....

### JFORTH PROFESSIONAL .....

### LATTICE C SAS/C .....

### LATTICE C++ .....

### POWER WINDOWS 2.5 .....

### SOURCE LEVEL DEBUGGER .....

## PRINTER UTILITIES

### DJ HELPER .....

### PALETTE PRINTER .....

### SUPER\_DJ V2.0 .....

### ATALK III .....

### BAUD BANDIT .....

### BBS PC .....

### ONLINE PLATINUM .....

### MINDLINK TELECOMM .....

### PARAGON BBS V2.08 .....

### STERLING SERVICE BBS .....

### SKYLINE BBS V1.2 .....

### AMIGA VISION .....

## TELECOMMUNICATIONS

## PRODUCTIVITY SOFTWARE

### AUTHORING SOFTWARE

### AMIGA VISION .....

## AMOS THE CREATOR .....

## AMOS THE COMPILER .....

## CANDO .....

## CANDO PAL VERSION .....

## CANDO INTROPAK .....

## CANDO PROPAK 1 .....

## DIRECTOR V2.0 .....

## HYPER BOOK .....

## HYPER HELPERS .....

## PHASAR 4.0 .....



**U.S. ORDERS ONLY:  
800-872-8882**

**CANADA: 1-800-548-2512**

**CUSTOMER SERVICE OR  
213-214-0000  
ORDER STATUS**

4453 Redondo Beach Blvd., Lawndale, CA 90260 - Mon-Sat 8-6 PST - FAX: 213-214-0932

MATH MAGICIAN .....	25.95	DEEPSKY OBJECTS .....	18.95
MATH WIZARD .....	29.95	DISTANT SUNS V4.0 .....	57.95
MC GEE .....	25.95	INTELLITYPE .....	9.95
MOTHER GOOSE .....	19.95	JAPANESE I .....	25.95
MY PAINT 2.0 .....	28.95	LINKWORD (VAR LANGUAGES) .....	19.95
MY PAINT DATA DISK #1 .....	19.95	MATH-AMATION .....	49.95
MY PAINT DATA DISK #2 .....	19.95	MAVIS BEACON TYPING .....	34.95
NUMBERS COUNT .....	13.95	PRE CALCULUS .....	31.95
NURSERY RHYMES STORY .....	19.95	TRIGONOMETRY .....	31.95
OPPOSITES ATTRACT .....	13.95	WHERE IN EUROPE CARMEN .....	29.95
SPELLAFARI .....	23.95	WHERE IN TIME IS CARMEN .....	29.95
<b>GRAMMAR SCHOOL/ADULT</b>		WHERE IN THE U.S.A. ....	29.95
		WHERE IN THE WORLD .....	29.95
		WORLD ATLAS 2.0 .....	32.95

#### CD TITLES

ALGEBRA I .....	31.95	ADVANCED MILITARY SYSTEMS .....	29.95
ALGEBRA PLUS VOLUME I .....	31.95	ALL DOGS GO TO HEAVEN .....	32.95
ALGEBRA PLUS VOLUME II .....	29.95	AMERICAN HERITAGE DICTIONARY .....	49.95
ARITHMETIC .....	29.95	BARNEY BEAR GOES TO SCHOOL .....	25.95
BIBLEREADER STUDY .....	31.95	CASE OF THE CONDOR .....	32.95
CALCULUS .....	31.95	CLASSIC BOARD GAMES .....	32.95
DISTANT SUNS V3.0 .....	40.95	ELECTRONIC COOKBOOK .....	43.95
DISTANT SUNS V3.0 PAL .....	42.95	FRED FISH COLLECTION 1 .....	48.95
YALE BRIGHT STAR CATALOG .....	12.95		
SKYMAP LVL 1 STAR CATALOG .....	15.95		

#### GAME SOFTWARE

#### ARCADE GAMES

AWESOME W/ T-SHIRT .....	34.95
BATMAN THE MOVIE .....	29.95
BATTLE STORM .....	29.95
BATTLE SQUADRON .....	14.95
DRAGONS LAIR II/SINGE'S CSTL. ....	34.95
DRAGONS LAIR II/TIME WARP .....	34.95
HOVER FORCE .....	32.95
KILLING GAME SHOW .....	26.95
LEMmINGS .....	32.95
MARBLE MADNESS .....	19.95
MEAN STREETS .....	32.95

MONTY PYTHON'S CIRCUS .....	32.49
NITRO .....	28.95
NY WARRIORS .....	32.49
PERSIAN GULF INFERNO .....	14.95
PICK 'N PILE .....	27.95
PIONEER PLAGUE .....	10.00
POWERDROME .....	13.95
POWER PINBALL .....	23.95
PRINCE OF PERSIA .....	25.95
SHADOW OF THE BEAST .....	25.95
SHADOW OF THE BEAST II .....	34.95
SHOOT 'EM UP CONSTRUC .....	13.95
SPACE ACE .....	33.95
SPEEDBALL 2 .....	32.95
SPOT - THE 7UP GAME .....	25.95
SWORD OF SODAN .....	15.95
TEENAGE MUTANT NINJAS .....	29.95
TURRICAN II .....	32.95
A-10 TANK KILLER .....	32.95
BLUE MAX .....	34.95
CHUCK YEAGER'S ADV FLT .....	27.95
F-16 COMBAT PILOT .....	13.95

F-19 STEALTH FIGHTER .....	34.95
F-18 INTERCEPTOR .....	13.95
F-20 RETALIATOR .....	29.95
FALCON .....	32.95
FALCON MISSION DISK .....	15.95
FALCON MISSION DISK 2 .....	17.95
FLIGHT SIMULATOR II .....	32.49
SCENERY DISK #7 .....	19.95
SCENERY DISK #9 .....	19.95
SCENERY DISK #11 .....	19.95
SCENERY DISK STARTER .....	37.95
SCENERY DISK W.EUROPE .....	19.95
SCENERY DISK, JAPAN .....	19.95
THEIR FINEST HOUR .....	24.95
WINGS .....	34.95
<b>ROLE PLAYING</b>	
B.A.T. .....	34.95
BARD'S TALE .....	13.95
BARD'S TALE II .....	13.95
BARD'S TALE III THIEF OF FATE .....	34.95
CAPTIVE .....	32.95
CHAMBER OF SCIMUTANT .....	29.95
CHAMPIONS OF KRYNN .....	34.95

## Centaur Software Inc.



**Mindlink**  
A Powerful New  
Telecommunications  
Package .....



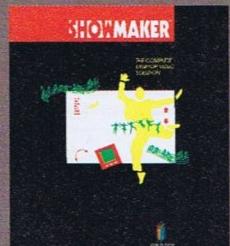
**Pixound**  
Transforms your Amiga  
graphics into music.  
Supports MIDI as well as  
Amiga sounds .....



**B.A.D. Ver. 4.0**  
Best-selling disk optimizer  
for all Amigas. Speeds  
floppy and hard drives by  
up to 5 times! .....



**World Atlas 2.0**  
4 disks of info on over  
170 countries + 255  
maps .....



**ONLY \$215.00**

**MAKES DESKTOP  
VIDEO A REALITY!**

- Synchronize Video and Sound to the Beat!
- Control External Devices like the Video Toaster, LaserDisc, VCRs, Writable Optical Disks, MIDI!
- Create Productions of Virtually Unlimited Length!
- Edit Productions in Real Time on Your AMIGA!
- Save Finished Productions to Video Tape!

**CONTROL YOUR VIDEO TOASTER!**

## Draw 4D Pro

Finally! Professional, USER FRIENDLY 3D rendering & animation  
for the Amiga! Renders any Amiga mode plus 24-Bit. EASY  
texture mapping! Great Manual. Direct DCTV support! Output 3D  
PDraw Clips! Video and Publishing!



- Unlimited Lights that animate
- Parallel Spaces to work in
- Double buffered real-time editor
- Phong/Gouraud/Facet
- Built-in Font Editor
- Unlimited points per poly
- IFF/IFF24/Anim/Clip output

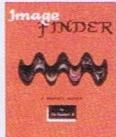
**Call**

## SCREEN-MAKER

100 Deep Color  
24-bit IFF Images  
**\$239.00**



**Image  
Finder**  
**\$42.95**



## XCAD Professional

Full-featured,  
professional,  
2-D  
design and drafting  
tool suitable for  
engineers, draftsmen,  
and designers.



**\$149.00**

**While Supplies Last**

## Audition

Advanced digital sound editing.  
More features than AudioMaster 3.  
100% Assembly language. **\$64.95**



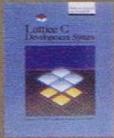
## SCALA

**\$249.00**



## SAS/Lattice C 5.1

The Standard complete C  
programming language for the  
Amiga .....



**OFFER CODE: P1940111**

**OFFER VALID August 1, 1991 - August 31, 1991**

# Visit our Amiga Superstores!

South Bay: 4453 Redondo Beach Blvd. - Lawndale, CA 90260 - Mon-Sat 11-7 PST Phone: (213) 542-2292  
 Westside: 318 Wilshire Blvd. - Santa Monica, CA 90401 - Tues-Sat 11-7 Sun 11-5 PST Phone: (213) 394-7779

Creative  
Summer Sale

## SPORTS

GRETZKY HOCKEY	32.48
HARD DRIVIN'	31.95
HARD DRIVIN' 2	32.95
HARDBALL II	32.49
HARDBALL II DATA DISK	12.95
HOCKEY LEAGUE SIMULATOR	22.95
HOLE IN ONE GOLF	23.95
HOLE IN ONE COURSE #3	11.95
INDIANAPOLIS 500	34.95
JACK NICKLAUS UNLIMITED	38.95
JACK NICKLAUS CLSC 1	12.95
JACK NICKLAUS COURSE 1	14.95
JACK NICKLAUS COURSE 2	14.95
JACK NICKLAUS COURSE 3	14.95
JACK NICKLAUS COURSE 4	14.95
JACK NICKLAUS COURSE 5	14.95
PRO TENNIS TOUR 2	34.95
PROF. FOOTBALL SIM.	22.95
TENNIS CUP	25.95
TESTDRIVE II	32.49
CALIFORNIA CHALLENGE	14.95
EUROPEAN CHALLENGE	14.95

## ACTION/STRATEGY

MUSCLE CARS	14.95
SUPER CARS	14.95
TV SPORTS BASKETBALL	19.95
TV SPORTS FOOTBALL	19.95
TV SPORTS FOOTBALL 90 DATA	9.95
WORLD CLASS SOCCER	27.95
HOCKEY LEAGUE SIMULATOR	22.95
HOLE IN ONE GOLF	23.95
HOLE IN ONE COURSE #3	11.95
INDIANAPOLIS 500	34.95
JACK NICKLAUS UNLIMITED	38.95
JACK NICKLAUS CLSC 1	12.95
JACK NICKLAUS COURSE 1	14.95
JACK NICKLAUS COURSE 2	14.95
JACK NICKLAUS COURSE 3	14.95
JACK NICKLAUS COURSE 4	14.95
JACK NICKLAUS COURSE 5	14.95
PRO TENNIS TOUR 2	34.95
PROF. FOOTBALL SIM.	22.95
TENNIS CUP	25.95
TESTDRIVE II	32.49
CALIFORNIA CHALLENGE	14.95
EUROPEAN CHALLENGE	14.95

## TERRAIN EDITOR

ANCIENT CITIES	23.95
FUTURE CITIES	23.95
STAR CONTROL	29.95
STELLAR-7	23.95
TETRIS	19.95
FACES...TRIS III	24.95
WELLTRIS	24.95
NORTH AND SOUTH	29.95
POWERMONGER	33.95
RISK	25.95
ROMANCE OF 3 KINGDOMS	44.95
SILENT SERVICE	19.95
UNIVERSAL MILITARY SIM II	34.95
WARLORDS	29.95
WOLF PACK	35.95

## WAR/STRATEGY

BANDIT KINGS OF CHINA	38.95
CARTHAGE	25.95
CENTURION	34.95
DAS BOOT	34.95
EMPIRE	34.95
GENGHIS KHAN	38.95
GUNBOAT	32.95
HARPOON	41.95
BATTLESET #2	20.95
BATTLESET #3	20.95
SCENARIO EDITOR	27.95
INTERCEPTOR, RENEGADE LEGION	38.95
M1 TANK PLATOON	35.95
NOBUNAGA'S AMBITION	38.95
CENTERFOLD SQUARES	19.95
FEMME FATALE	20.95
LEISURE SUIT LARRY II	35.95
SEX OLYMPICS	24.95
STRIP POKER DATA DISKS(EA)	12.95
STRIP POKER II	25.95

## ADULT

CENTERFOLD SQUARES	19.95
FEMME FATALE	20.95
LEISURE SUIT LARRY III	35.95
SEX OLYMPICS	24.95
STRIP POKER II	25.95

## NEW GAMES

BATTLE COMMAND	24.95
CARDINAL OF THE KREMLIN	32.95
CRIME DOES NOT PAY	32.95
CONFLICT MIDDLE EAST	38.95
CYBERCON	35.95
DEATH KNIGHTS OF KRYNN	34.95
F-15 STRIKE EAGLE II	39.95
FAST EDDIE'S POOL	24.95
JAMES BOND: THE STEALTH AFFAIR	35.95
KILLING CLOUD	29.95
KING'S BOUNTY	32.95
FRACHT FANTASY	21.95
LIFE AND DEATH	32.95
MEDIEVAL WARRIORS	29.95
MEGATRAVELLER 1	38.95
MIG 29 FULCRUM PAL VERS	49.95
RAILROAD TYCOON	39.95
SECRET OF THE SILVER BLADES	34.95
STORM BALL	32.95
STREET ROD II	27.95
SWIV (SILKWORM 2)	32.95
TEAM YANKEE	38.95
TERMINATOR	34.95
THE MIND'S EYE	18.95
TODD RUNGREN VIDEO	CALL
ULTIMATE VIDEO PROD 1	32.49
ULTIMATE VIDEO PROD 2	38.95

## VIDEOTAPES

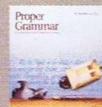
AMIGA HARD DRIVES VIDEO	39.95
AMIGA PRIMER	24.95
AMIGA VIDEO MAGAZINE	14.95
AMIGA WORLD VIDEOTAPE	19.95
ANIMATION 101 TUTORIAL	24.95
DCTV: A GUIDED TOUR	28.95
DELUXE PAINT 3 VIDEO	19.95
DIRECTOR TUTORIAL VIDEO	28.95
FRESH VIDEO PORTFOLIO '90	21.95
FRESH VIDEO PORTFOLIO '91	21.95
HELPFUL LIGHTWAVE TUTORIALS	33.95
HOT RODDING YOUR AMIGA	18.95
IMAGINE: A GUIDED TOUR	28.95
IMAGINE: GUIDED TOUR PAL	26.95
LIGHTWAVE TUTORIAL VIDEO	32.95
MANDELROT/JULIA VIDEO	24.95
MUSICAL AMIGA VIDEO	23.95
THE MIND'S EYE	18.95
TODD RUNGREN VIDEO	CALL
ULTIMATE VIDEO PROD 1	32.49
ULTIMATE VIDEO PROD 2	38.95

## SoftClips



\$44.95

## Proper Grammar



\$57.95

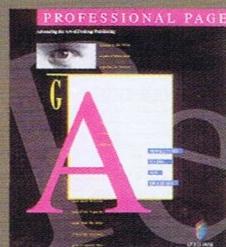
## Pen Pal



\$89.95

## Professional Page 2.0

The Ultimate in Desktop Publishing



\$185.00

Easy to Use.

Works with ALL printers.

Includes word processor and dictionary.

Prints 24-bit images.

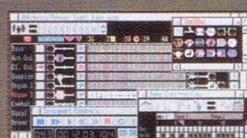
1000 color display.

Rotates text and graphics.

Comes with free DTP video.

## Bars & Pipes Professional

\$222.00



Bars & Pipes Professional will open your eyes to a new vision of music software. Its expandable design and innovative architecture increase the creativity and productivity of the modern composer.

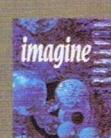
Deluxe Video III &  
Deluxe Photolab Bundle  
now for only \$99.95

## Cyberblast

More to shoot, dodge and grab than in any arcade hit!  
Two Players simultaneously!



Call



## Imagine

Hot New 24-bit 3D Rendering and Animation Software

\$199.00

Imagine: A guided tour  
Unleash the power of Imagine using this easy-to-follow 90-minute tutorial from Centaur Software. \$26.95

Buy both and get \$5.00 off!



## DCTV: A guided tour

This easy-to-follow, comprehensive VHS tutorial will tell you need to know about DCTV.

\$26.95

OFFER CODE: P1940111

OFFER VALID August 1, 1991 - August 31, 1991

# The Amiga Power Up Program.

## The Most Lopsided Deal Since We Bought Manhattan for \$24.

*Now you can power up to an Amiga 3000 and you don't even have to bring in your old computer!*

Introducing the Commodore POWER UP Program - where you can save up to \$1,500\* off MSRP on an A3000 series machine with proof of ownership of ANY Commodore computer: VIC 20, C64, C128, A500, A1000, and A2000 series machines all qualify! All that's required for this fantastic deal is the original cover page of your CPU manual with the serial number written on it - no photocopies, please - and that's all! Due to the overwhelming response to the Power Up program, Commodore could not build enough machines to meet the demand on time, so they extended the offer through August 31st, 1991. But act now, since supplies are still limited. The A3000 Power Up program is only available for local in-store pick up (**no mail order**), so come in to Creative Computers today to take advantage of this special offer!



### Two Amiga Superstores to serve you:

South Bay — 4453 Redondo Beach Blvd., Lawndale, CA 90260 (213) 542-2292 Open Mon-Sat 11-7

Santa Monica — 318 Wilshire Blvd., Santa Monica, CA 90301 (213) 394-7779 Open Tue-Sat 11-7, Sun 11-5

Creative Computers is proud to be a regional distributor of Commodore Amiga Computers. We assist and distribute Amigas to the dealers listed below. You can "Power Up" to a powerful new Amiga 3000 at any one of these fine locations:

ADCO Enterprises, Inc 1933 E. McDowell Phoenix, AZ 85006 Phone: 602-253-8471 FAX: 602-253-8757

Alltronic Computers 16820 Ceres Ave. Fontana, CA 92335 Phone: 714-823-0608

Any And All Computer Guild 230 East Ave K-4 Unit 1, Lancaster, CA 93535 Phone: 805-940-1667

Bullseye Communications 312 So. Cedros Ave. Solana Beach, CA 92075 Phone: 619-259-8448

BWS 924 Huntington Dr. San Marino, CA 91008 Phone: 818-570-1011 FAX: 818-570-1091

Commodore Connection 6086 University Ave. San Diego, CA 92115 Phone: 619-583-7226

Computer Logic 973 Foothill Blvd. #4 San Luis Obispo, CA 93405 Phone: 805-544-8347

Computer Station 2254 Pacific Ave. Long Beach, CA 90806-4312 Phone: 213-595-0899 FAX: 213-424-7813

DataSystems 115 W. Birch Flagstaff, AZ 86001 Phone: 602-779-4227

Metroronics 3803 Catalina Los Alamitos, CA 90720 Phone: 714-82as7-4580 FAX: 213-594-9146

NAK Enterprises 4277 Transport St. Ventura, CA 93003 Phone: 805-658-2321 FAX: 805-658-1458

New Horizons Computer Systems 1200 N. White Sands Blvd. Alamogordo, NM 88310 Phone: 505-437-9117 FAX: 505-437-0144

North American Digital (NAD) 4003 E. Speedway Ste 118-119 Tucson, AZ 85712 Phone: 602-323-7895 FAX: 602-323-6946

RoadRunner Computer Systems 2002-F Cerrillos Road Burbank, NM 87501 Phone: 505-471-9200

Studio Spectrum 1056 North Lake St. Burbank, CA 91502 Phone: 818-843-1610 FAX: 818-843-1145

Video Tape Products 320 N. Madison Ave. Los Angeles, CA 90004 Phone: 213-664-1144 FAX: 213-661-2177

### Want to become an Amiga Dealer?

If you are interested in becoming an Amiga Dealer and are in Southern California, Arizona, New Mexico, Southern Colorado or Southern Nevada, call us at 1-800-552-8883. We'll give you the details and see if you qualify for this unique opportunity.

If you have a Commodore VIC 20, 64, 128 or Amiga 500, 1000 or 2000 series, save up to:

\$1,500 on the Amiga 3000-25/100

\$1,250 on the Amiga 3000-25/50

\$1,150 on the Amiga 3000-16/50

\*Not valid in combination with any other promotional offer. Power Up program applies to CPUs only; monitors pictured must be purchased separately. Power Up reward based on MSRP. MSRP for Amiga 3000-16/50, \$2,999; A3000-25/50, \$3,499; A3000-25/100, \$4,699. Expires 8/31/91. Commodore VIC 20, 64 and 128 are registered trademarks of Commodore Electronics, Ltd. Amiga 500, 1000, 2000 and 3000 series are registered trademarks of Commodore-Amiga, Inc.

# THE GAME PRESERVE



## ARMOUR-GEDDON

By Rob Lawrence

It's daybreak, and from the base tower, I watch a small speck slowly grow as it approaches through the lightening sky—one of my bombers returning from last night's raid on the enemy power line. It's leaking fuel from extensive flak damage, so I ease her down onto the blacktop and quickly taxi onto the lift and down into the compound for repair.

Launching a chopper for cover, I then bring my fighter out onto the runway and take off. Intelligence recon photos have informed me of an abandoned airstrip about seventy miles northeast—a possible location of the nuclear radiation shielding. I set the waypoint beacon and send the fighter screaming off toward the horizon to find it alone.

Switching back to my hovercraft, I see that it has almost reached the island. Activity here is heavy, so I arm missiles. A rocket from a pursuing chopper slams into my side. Turning sharply, I lock on and return fire. The bird goes down in flames, but my shields are critical. Two more hits from a land battery are enough to do me in.

Back at the base, my engineers have completed another heavy tank, which I arm with lasers, shells, and a cloaker. I then drive out under the base teleporter and transport myself out to telepod 4 (air-dropped earlier from a bomber). No sooner am I clear of



You'll need superior flight skills and strategies in order to achieve real success in this battle.

the pod, than rocket fire explodes around me.

My cloaker is a gas guzzler, but I need it now. With the device engaged, I sit back and watch the bewildered fighters circle and fly away. Setting course for the enemy airfield, I activate my cannon and prepare for one massive onslaught...

These are just a few of the white-knuckled experiences I've been through in *Psychosis*'s latest masterpiece, *Armour-Geddon* (\$44.99). If it sounds harder than hell, well, that's an understatement. If it sounds incredibly thrilling, read on.

In short, *Armour-Geddon* is simply the most breathtaking, mind-blowing 3-D simulation yet released for the Amiga. From the outstanding graphics to the hyper-sonic animation, from the exploding stereo sound to

the seat-of-the-pants controllability, everything in this game is 100% pure Amiga!

I needn't bother with petty details of the plot (trust me, it's exciting and believable enough), but the play area is over 6400 square miles, and you are given six different vehicle types to pilot (all simultaneously, if you want). The sophisticated instrument and HUD displays are very accurate (IR night vision is especially neat), but you can control from almost any external view, including satellite. There's also an option for two comrades to play via serial link.

I could go on for days describing the interesting little details; you'd have to break my arm to get me to criticize this one. OK, so it's not hard-drive installable, the manual isn't exactly a novel, and the copy protec-

## Crib Notes

By Peter Olafson

SOME FOLKS ARE hooked on the puzzle involved in getting into the Captain's Den in *Bane of the Cosmic Forge* (Sir-Tech, \$59.95). This actually isn't as tough as it seems, as there are a couple of ways to go about it.

There are two steps involved—getting the password to the front door and the key giving access to that rather odd fellow in the cage at den center. The word can be had either from Queequeg—either by trade or by bashing it out of him. (As you may still need him to serve as your local weaponsmith and druggist, I'd suggest the former.) He wants a particular bit of information—not the actual item—and you'll need both the journal in which the reference is buried and a way to decipher it. If you've explored the dungeon thoroughly, this shouldn't be a problem. (For a little nonessential fun, go check out the item yourself later.)

You'll have quite a fight on your hands once you're in there, and when it's done, you're going to need a key. That can be had in another trade. If you've explored the castle towers, then you've probably come across a lovelorn bloke named L'Montes moaning about his "beloved," and it won't take you long to realize that—like most of the folks around here—she's not exactly human. (She isn't even alive.) Do you suppose you could help him out? Perhaps if you checked out the castle cellar...

Another nasty Bane riddle is the correct procedure to lower the drawbridge over the chasm. (Getting the panel open is child's play if you took Queequeg up on his "special.") The only thing tough about this puzzle is the stilted language. You need to simplify the instructions into a series of logical statements, such as "A comes before

To locate developers of the games reviewed, see the "Manufacturers/Distributors" list on p. 100.

tion is harder to crack than Fort Knox. There! I said it. Overall, I give Armour-

Geddon a 10.5 and the nomination for the best game of the year. Psygnosis

would be stupid to neglect the development of a sequel. Don't pass this one up.

B." The first instruction involves the safety, and you have to use it twice.

I've also heard from some folks stuck in the mines and the pyramid, and no wonder. These mazes make careful mapping imperative, as you'll frequently need to go up a level (or two) to go down (and vice-versa). Label each stairway with the same designation on each of the levels it connects, and you'll find getting around is much easier.

Finally, freeing the wizard from the crystal on the mine's bottom level requires one particular implement, and it's well hidden. Not the pick. (Too bulky.) Check out Level 2 of the mine—not too far from the dwarf's forge.

- "Tricky" Level 26 in *Lemmings* (Psygnosis, \$44.99) is a sticking point for many people. The little guys pour out at top speed; you have to save all of them, and you can't use a blocker. The only way I've found to lick it so far is to immediately turn the first half-dozen or so into bridge builders. Together, they will create a thick abutment that will sometimes serve in lieu of a blocker to turn their brother lemmings around, at which time you can breath a deep sigh and set to digging the tunnel to the exit. (If you find that lemmings scaling the bridge are themselves turning around and marching into the flames, try to stagger the point at which each builder starts his bridge. That should make the slope easier to climb.)

- A few folks are in the dark on how to deal with their "shadow" on Level 12 on Broderbund's *Prince of Persia* (\$39.95). Remember that your shadow always does what you do. So if you were to put away your sword, it wouldn't be able to hurt you. You take it from there.

Level 3's treacherous jumps are also proving a pain for some people. Once you've mounted the central pillar, you'll need to head right. I know, I know. It looks as though there's nothing there. Hey, would Crib Notes send your poor little character to its death? (Ehhh, could be, doc!) There's a platform, all right, and also a trigger that will open the gate some distance to the left.

Once you've hit the trigger, there's absolutely no time to spare. Run as fast as your little animated ►

## EYE OF THE BEHOLDER

By Peter Olafson

If imitation is the sincerest form of flattery, then the boys at FTL must be blushing the color of purple worms, for Eye of the Beholder (Strategic Simulations Inc., \$49.95) is the sincerest form of Dungeon Master I've seen yet. Indeed, in some respects, it goes it one better.

EOB, the first release in the publisher's new Legend series, is a mouse-driven, WYSIWYG, dungeon role-playing game in three dimensions. If you want to pick up a dagger, you click on it. The dagger becomes the cursor and then you click on the section of a character's inventory where you want it to go. If you want to experiment with an odd-looking section of wall in a deadend corridor, you simply click on that, and so on. Familiar stuff, to be sure, but it's the next best thing to being there.

Your party of four has been commissioned to rid Waterdeep, a Forgotten Realms city, of something nasty. You start in the sewers—which promptly cave in behind you. From there, it's all downhill until you meet the unseemly horror lurking at the bottom.

It's a great-looking game. DM and Chaos Strikes Back used only 16-color screens. EOB uses 32—the de facto standard for Amiga games these days—and the results are decidedly impressive. Each of the 12 levels is rendered in its own delightfully



Zaladin's hurt; how will Yeric fare?

mordant palette, and the living glow provided by the extra 16 colors catapults EOB into a new dimension of realism.

The corridors are inhabited by the usual range of monsters (though they don't seem as thick on the ground as in some other games), and they've been done up in the same eye-catching style and even given distinctive movement sounds. (The giant leeches sort of slurp along, so you can hear them coming before they appear.)

Overall, the game struck me as a kinder, gentler DM. Indeed, EOB would be a good starter game for adventurers who've found DM too daunting. For instance, you no longer need to worry about light (or food, after a point), and there's an on-screen compass. The game also installs on hard disk, and the manual-based protection is mild.

On the other hand, while beauty is certainly in Eye of the Beholder, there's also some room for improvement. One saved-game position isn't enough. Character interaction and occasional text passages for atmosphere are nice additions, but too limited. Also, as in Dungeon Master, you can fight in only one direction at a time, so the troops in the rear have to stand there and take their lumps if they're cornered. (If you allow the party to be attacked from more than one direction, it's only fair to permit it to defend itself in the same way.) And I sometimes wished the game were a little less safe and more deeply felt.

None of the problems change the fact that this is a beautiful and intensely playable game. Onward, and downward. Just be sure to watch your back.

## GOLD OF THE AZTECS

By John Ryan

Take a 400-year-old Spanish map, throw in Aztec

ruins with traps and pitfalls that would have made Indi-

ana Jones proud, then add gorgeous graphics and ►

sound. What do you have? You have Gold of the Aztecs (US Gold, \$49.95), an action game of impressive sophistication and breadth.

As the bored and penniless Bret Conrad, a retired special forces veteran, you've been recruited to enter the tomb of Quetzalcoatl and recover the fabulous riches that supposedly lie somewhere within. There are a few problems, of course. The tomb is filled with snakes, hostile natives, traps, and just about every conceivable obstacle you can think of. Finding the gold, it seems, becomes secondary to surviving in this game. And surviving is not an easy task.

After being unceremoniously dumped into the jungle, you must slowly work your way through over 80 screens full of danger. To begin with, you have at your disposal a gun and machete to help deal with some of the foes you'll run into.

All action is controlled by either the joystick or (heaven help you) the keyboard. Your character can jump, climb, somersault, duck, pick up items, pull levers, shoot, or engage in close-quarters combat. In fact, there are over 32 joystick combinations available to help control Mr. Conrad.

Needless to say, things can get confusing—at least until you've had a lot of practice with the joystick. In the beginning you'll find yourself jumping when you meant to duck, or somersaulting at the worst moment—usually into some form of deadly trap. The unwieldy joystick operation is one of my two biggest complaints with this game.

If there was ever an action game that deserved the



**Feed him dinner or you'll be his dinner.**

graphics and sound award of the year, it is Gold of the Aztecs. Like many European releases, it is a true pleasure to look at. As you control your on-screen character against the scrolling backdrop of the tomb and surrounding jungle, animation abounds everywhere. Well-defined adversaries move about in fluid movement, lifelike and superbly drawn. In fact, the author states that there are 7,000 frames of animation and 600K of music and sound effects. It shows. Rich in color and digitized sound, Gold of the Aztecs offers a lot to see and hear.

Rest assured, however, that you'll not have much time to indulge in frivolous sight-seeing. There's no way around dying many horrible deaths. Getting through the many screens this game offers means timing and practice, and, admittedly, it can get frustrating. While you do have several lives to work with, your hero dies with the first strike from an arrow, poison dart or other weapon. Instead, I would prefer to see damage slowly assessed for each hit.

Granted, software piracy

is a problem these days, but the precautions against it border on paranoia. First of all, the game does not install on your hard drive (even though the IBM version does). Second, there is on-disk copy protection and a code wheel that is very difficult to read. Lastly, the program asks you to enter a code not once, not twice, but three times! Even after you're in the game, you'll be asked to input codes periodically. I realize that much of Europe is still using cassette-based software, but I am growing weary of European releases that do not support Amiga hard drives, yet insist on using off-disk and on-disk copy protection in tandem.

Superb graphics and sound aside, Gold of the Aztecs' playability leaves much to be desired, and the excessive on-disk and off-disk protection, coupled with the unwieldy joystick operation, earns it two thumbs down from this reviewer. After dying 50 times within the first three screens, I was ready to move on to kinder and gentler software.

legs can carry you, and take the final jump at the last second and at full speed. (Keep the fire button down, as you'll need to grab the ledge.) With any luck, you've timed it so the gate is slightly ajar, and you'll be able to pull yourself up and through. Phew. I'm sweaty just from writing that.

- **Things You Might Have Overlooked Dept.:** You can make Indy's life easier in the graphic adventure version of *Indiana Jones and the Last Crusade* (Lucasfilm, \$49.95) if you spend some time checking out the stacks in the library before plunging into the catacombs. In addition to *Mein Kampf*—the obvious selection—there's a book on biplanes (black) and on catacombs (yellow). (If you come across any others, give a holler.)

And some odds and ends: You don't have to fight the guards in the castle. You should be able to avoid them or bluff your way past each one. (OK, you need to give Biff the Nazi a love tap, but that's hardly a fight.)

There's no way to prevent the biplane from crashing. And once you take to the road, you can get past the border guards—provided you show the pass signed by Hitler. (The pass is in Vogel's office at the castle; the signature should come on your visit to Berlin.)

Success in the third Grail trail relies on finding the right spot on the far side of the chasm. Hunt around. Sooner or later it'll click.

Next time: The two big problems with Elvira! (ahem). If you need help with an adventure game—no more CLI or utility questions, please!—you can reach me by US mail at 12 West 104th St., New York, NY 10025, and via electronic mail as P.OLAFSON on GENie and Peteroo on People Link. □

## PICK 'N PILE

By David Randall

Opening up the game box of Pick 'n Pile (UBI Soft, (\$39.95) is shocking, as there is almost nothing inside.

There's a disk, a small manual and the ever-present question and warranty cards; what's missing? The size of

the box seems a waste of material, but as gameware packaging has become standardized, what can you do? ▶

Announcing:

# Voyager

the Dynamic Sky Simulator™



Pluto and the Outer Planets from 50 A.U.

VOYAGER brings a dynamic universe to your Amiga, re-creating the sky for almost any time and any location. It is an incredible learning tool for astronomers of all ages and all levels. Fast enough to animate the motions of the planets on screen and accurate enough to show eclipses. Let VOYAGER open your imagination to the wonders of the universe.

Requires 1 Meg Amiga. \$124.95 Contact Carina Software, 830 Williams Street, San Leandro, CA 94577. (415) 352-7332.  
Ask about our special introductory offer.

Circle 77 on Reader Service card.



## AMI-BACK™

### The Next Generation of Backup Program

Ami-Back is a comprehensive hard drive backup utility with a number of powerful features that make it the most professional program of its type on the market.

- Ami-Back is the fastest hard disk backup program for the Amiga!
- ★ Ami-Back performs Image backups to any partition--this is great for users with Amax or Unix partitions!
- ★ Ami-Back supports multiple-device backups. Now you can backup any or all of your partitions at once!
- ★ Ami-Back supports Hard and Soft links under AmigaDOS 2.0!
- Backs up to floppies, hd floppies\*, harddrives, and SCSI tape drives.
- ★ No special software required for SCSI tape drive support! This makes Ami-Back 80%-90% faster than its competition on most controllers!
- Performs backups to a single AmigaDOS file or device.
- Performs complete, incremental (date or archive bit), & selective backups.
- Allows up to 100 file & directory exclusion conditions during backup.
- Allows you to replace defective media without interrupting backups.
- Allows control of protection bits and file datestamps during restores.
- Allows you to Write-Over, Skip-Over, or Rename files during restores.
- Can compare backed-up data to system data if data loss is suspected.
- User-configurable scheduler (no script files!) allows unattended backups.
- ★ Scheduler now supports multiple backup configurations!
- Support for registered users provided by phone, support BBS, GEne, or BIX.
- Works with AmigaDOS 1.3 or greater (AmigaDOS 2.0-only version included).
- Performs complete or selective restores.
- And many more features!

\* These are features new to version 1.04. \* Commodore standard. Applied Engineering's HD floppy does NOT work with some versions of Kickstart 2.0 at this time.

Don't wait until it's too late... order your copy of Ami-Back today!

Moonlighter Software Development, Inc.  
3208-C E. Colonial Dr., Ste. 204  
Orlando, Florida 32803  
Voice: 407-628-3005  
Fax: 407-628-4525



For a limited time, send in your previous backup program original disk and order Ami-Back at the special price of \$49.95. suggested list price: \$79.95

AMI-BACK is a registered trademark of Moonlighter Software Development, Inc.  
Amiga and AmigaDOS are registered trademarks of Commodore-Amiga, Inc.

76 August 1991

Circle 92 on Reader Service card.

## GAME PRESERVE



Stack matching patterns to pile up the points.

The instruction manual is short, to the point, and—like most manuals—neglects to tell you how to start the game. There are some vague instructions, but creativity is needed to get things rolling. Next is the menu, which is like the manual in obscurity; eventually you discover you must choose the one- or two-player option last, as this selection starts the game. After you've chosen the easy or difficult option, you decide on keyboard, mouse or joystick operation. Using the mouse is much faster than the other two, so I recommend it.

The game itself seems infantile at first: piling up objects of the same kind to make them disappear. "Now, which of these things is not like the other?" kept playing in my head. But playing Pick 'n Pile is not as easy as it first seems. Strategy and planning are needed to make sure no similar objects are left over when time runs out or you lose one of your original three lives.

The objects in the first few levels consist of balls of three different colors, square blocks, and assorted bonus "things" that add to or mul-

tiply your points when the column disappears. If a column worth over a thousand points is "offed," a diamond appears at the bottom of the screen, its color depending on the column's worth. When the bottom of the screen becomes full of diamonds, your score is greatly increased. Neat, eh?

The higher levels have you dealing with bombs, flowers, flames and vicious death heads, which are kinda cute but quite bothersome. I made it to a hundred and something thousand in a little over 20 screens, and to think that the difficult mode starts at 50 makes me quiver with fear and loathing.

Pick 'n Pile is a little game requiring strategy, planning and concentration, and it provides some fun, but your favorite it will not likely be. ■

# NEW PRODUCT FOR THE AMIGA . . . HARDWARE - SOFTWARE PACKAGE.



INTRODUCING . . .

## SYBIL

Simple to install, no soldering required.

Priced At  
**\$149.95**

Features include:

- Whole disk compressor can save an entire disk as AmigaDOS files, retaining the copy protection. Files can be transferred to/from any media such as Floppies, Modems, HardDrives, Tape Back Up Units, etc., files can be decompressed to their original form when necessary.
- Increase floppy storage to 1.12 Megabytes of data using a standard DSDD disk. That's a 21% increase in storage.
- Multi-DOS transfer program allows IBM, MAC, ATARI, and AMIGA files to be transferred to any DOS format.
- Super Card AMI style backup system - copy using one or more drive. Unit compensates for all drive speed incompatibilities. Multiple copies can be produced at the same time.
- Order your SYBIL today for this multi talented hardware, software package.

### SUPER CARD AMI II Back Up System

This hardware/software combination requires no soldering. The hardware unit installs in between the computer and the drive port (or internally if you have an Amiga 2000 w/2 internal drives). Our software is like no other, most titles are set up in easy to use copier files. When you want to back up a title just look it up in the alphabetical list and it can be backed up in as little as 60 seconds.

**Super Card AMI II** is always shipped with the latest software, currently version 2.5. This software is also available separately for \$9.95.

SPECIFY WHICH AMIGA YOU HAVE WHEN ORDERING!!

A500/1000/2000/2500/3000 w/External Drive A2000/2500/3000 W/ two Internal drives.

\*SUPER CARD AMI II WORKS ON NTSC (60 HERTZ) AND PAL (50 HERTZ) SYSTEMS.

**\$69.95**

### CANADA ORDERS ONLY!!!

Now ordering products is easy. And Fast Delivery. We have set up a distributor just for you. Please place your orders by dialing, (519) 272-1528 or mail order to: P.O. Box 311, Stratford, Ontario, Canada N5A 6T3. For technical assistance dial (503) 647-9022 Thursday & Friday 10:00 A.M. to 3:00 P.M. Pacific Time!!!

**\$39.95**

## UTILITIES UNLIMITED OF OREGON, INC.

P.O.Box 532 North Plains, OR 97133 **ALL PRICES IN U.S. FUNDS.**

ORDERS TAKEN 24 HOURS A DAY AT (503) 647-5611 FAX LINE (503) 648-8992

Add \$5.00 Shipping and Handling - Add \$4.00 C.O.D. Add \$3.00 to all foreign shipments. VISA and MasterCard are accepted.

Circle 51 on Reader Service card.

### KICKSTART BOARD

When using KICKSTART 1.4 (WB 2.0), approximately 37% of the existing software will not work. Some programs still require KICKSTART 1.2 to work. This board takes care of the problem. Simply remove your existing KICKSTART ROM and plug our board into the KICKSTART ROMs on our board, so you can have 1.2, 1.3, & 1.4 all of the flick of a switch! Works with ALL Amiga computer and accessories such as processor accelerators.

**\$39.95**

### BOOT DRIVE BOARD

Ever wanted to boot from your DF1 drive before? What are you going to do if your DF0 drive dies? Tired of that annoying "click" caused by unused drives? Eventually, that clicking will wear out your drive! The BOOT DRIVE BOARD installs INSIDE your Amiga computer (all models supported), and allows the disabling of your DF1 drive. It also allows you to "swap" the use of your DF0 and DF1 drives without removing them! You can boot your system on your DF1 drive.

**\$49.95**

Here it is - The information you've all been waiting for -

## THE AMIGAWORLD FREQUENT BUYER'S SWEEPSTAKES WINNERS!

The following people have won prizes in our recent random drawing held for the AmigaWorld Frequent Buyers Sweepstakes. Winners will be notified directly.

### GRAND PRIZE:

An Amiga 3000 system  
donated by **GO AMIGO**  
Franz J. Heymann - Lakehurst, NJ

**2nd PLACE PRIZES:**  
All donated by **Applied Engineering**

**High Density Disk Drive**  
Ronald McNabb - APO, NY

**DataLink 2000 Modem with send Fax**  
P Terry Phnag - Vancouver, Canada

**Ramworks 2000 Memory card with 1 meg**  
Steven J. Molnar, Jr - Camp Verde, AZ

### RUNNER UP PRIZES:

**Set of Amiga books donated by Abacus**  
Andy Kohalmi - Winnipeg, Canada

**20 Game Titles donated by Star Games/Digitek**

Wang Ming Chich - McAllen, TX  
Mamie Dahroug - Sarasota, FL  
Carol Humpf - Albuquerque, NM  
Leland Whitlock - Chico, CA  
Ronald Cadman - Chesapeake, VA  
Gordon Bowie - Greenbrier, AR  
Markka Heinanen - Manistee, MI  
Robert Fillmore - Ottawa, Canada  
Cary Myers - Anchorage, AK  
William Simpson - Birmingham, UK  
Martin Allred - Sheffield, AL  
Andre Page - Sepulveda, CA  
Steve Gruzebeck - Minn., MN

S. Borthwick - Calgary, Canada

Ron Holland - East Boston, MA

Kevin Coffey - Tacoma, WA

Lee Kimball - Clovis, NM

Timothy Cunniss - West Lawn, PA

Randall Rost - Tacoma, WA

James Rose - Grant, MI

**On-line 3.0 donated by MSS**

Scott Timberlake - Tampa, FL  
Scott Walroth - Norwich, NY  
Tom Baker - Moose Jaw, Canada  
Roland Bergeron - St. Hubert, Canada  
George Bastos - Montreal, Canada  
Robert Cheng - Scarborough, Canada

**Excellance 2.0 donated by MSS**

Steve Crawley - Chandler, TX

**Works 2.0 donated by MSS**

Richard Erickson - Apple Valley, MN

**Prowrite 3.1 donated by New Horizons**

Chad Glaser - Chatfield, MN  
Robert Womble - Hurst, TX  
Mike Barcus - Moundsville, W. VA  
Mason Petty - FPO Miami, FL  
Larry Leonhardt - Scottsdale, AZ  
Chris Burkhart - Riverside, CA  
B. Armstrong - Orangeville, Canada  
Jil Kerkour - San Francisco, CA  
Jacques DuFour - Inverness, Canada  
Ken Bauer - Victoria, Canada

**Power Pinball donated by Karmasoft**

Mike Heron - Burlington, Canada  
David Neighbors - West Monroe, LA  
Diana Rovse - Lakeside, CA



HOURS: CST  
Mon - Fri: 9am - 9pm  
Sat: 11am - 5pm



Since 1982  
**ComputAbility**  
Consumer Electronics

800-558-0003

AMW 9-91

TECH INFO: (414) 357-8181  
FAX: (414) 357-7814

## AMIGA EXTRAS

At Once Adaptor 2000	\$79
AT Once - PC Emulator	\$259
Audition	\$59
Air Drive Int 3.5"-A3000	\$89
AMAXX II	\$137
Ami Gen/Mini Gen	\$89/185
Big Foot Power Supply	\$95
Bodega Bay	Call
Chroma Key/ Switcher	\$315
Color Splitter	\$105
CSA Mega Midget Economy	
25MHz (No MMU)	\$489
33MHz (No MMU)	\$569
CSA Mega Midget Racers	
25MHz w/ 68030 OK	
Expandable to 8MB	\$599
Mem Card 4MB Exp. 8MB	\$749
Optional 68882 Math Cop	\$199
Data Flyer RAM Card OK	\$89
Digiview Gold	\$115
ECE Midi Interface	\$48
Firecracker 2400 2 Meg	CALL
Flicker Fixer	\$235
GVP 150 MB Tape Streamer	\$619
Gravis Adv. Joystick	\$31
Gravis Mouse Stick	\$59
HAM/E Plus	\$389
Hitachi KPC 5010	\$929
Hitachi KPC 501G Cam	\$1079
ICD AD RAM Exp. to 4MB	\$99
ICD Novia 20i	\$479
Internal Drive 2000	\$79
MIDI Gold A500	\$55
MIDI Gold Insider A2000	\$59
Perfect Sound	\$65
Safeskin 2000/500	\$17
Video Blender	Call
Video Master	

## VIDEO TOASTER

Call For The Lowest Price!

## PERSONAL TBC

Call!

## DC TV

Call For New Low Price!

AD SPEED  
All AMIGA Computers  
**\$219**



**AD-IDE**  
For the A500 Amiga



Internal Hard Drive Packages

FLICKER FREE VIDEO AMIGA 500/1000/2000  
**\$299**

40 Meg Seagate A500  
**\$329**

52 LPS Quantum A500  
**\$369**

105 LPS Quantum A500  
**\$519**

Package Includes: AD-IDE, cables, Software, Drive, Mounting Hardware & Shuffleboard

**SupraModem 9600**



EXTERNAL V.32 • V.42 bis

Transfer Data up to 16 times faster than 2400bps modems

**\$479**

**SupraModem 2400**

**Plus \$135**

**SupraModem 2400**

AMIGA 500& 2000

External **\$89** with free modem cable

**SupraRam 500RX**

Expandable to 8MB  
**1MB \$125 2MB \$205**

**SupraModem 2400zi**



V.42 + MNP Levels with Atalks

**\$155**

**SupraDrive Hard Disk System**

**500 XP**

20 Meg w/512K ..... \$329

52 Meg w/ 512K ..... \$489

52Meg w/2MB (1Mx4) ..... \$559

105 XPS w/512K ..... \$669

105 XPS w/ 2 MB (1Mx4) ..... \$729

**EVERYDAY LOW PRICES!**

**SupraRam**

**2000 500**

2 MB ..... \$185  
4 MB ..... \$259  
6 MB ..... \$339  
8 MB ..... \$415

1/2MB  
Exp.-A500  
**\$49**

Panasonic

LOWER PRICES!



LOWER PRICES!

CITIZEN

KX-P 1180 ..... \$149 KX-P 2624 ..... \$439  
KX-P 1123 ..... \$209 KX-P 1654 ..... \$535  
KX-P 1124i ..... \$279 KX-P 4420 ..... \$789  
KX-P 1624 ..... \$339 KX-P 4450i ..... Call

NX 1001 Multifont NEW ..... \$139  
NX 1020 Rainbow NEW ..... \$185  
NX 2420 Rainbow ..... \$299  
NX 2420 ..... \$279

200GX ..... \$159 GSX 130 ..... \$239  
200GX-15 ..... \$299 GSX 140 PLUS ..... \$299  
GSX 145 Wide - 24 pin ..... \$385  
Color Kit - 200GX/GSX140 ..... \$49  
Color Kit GSX - 145 ..... \$65

NEW DRIVES

**Seagate AMIGA 500/2000 HARD DRIVE PACKAGES**

DRIVES	DRIVE ALONE	TRUMPCARD 2000	TRUMPCARD PRO2000	TRUMPCARD 500	TRUMPCARD PR 500	GRAND SLAM 500	GRAND SLAM 2000	SUPRA WORD-SYNC 2000	GVP Ser II HC 0MB -Not Exp.	GVP Ser II HC 0MB Exp to 8MB	DataFlyer 2000	Malibu Board 2000	
ST 157N-1 49MB/28MS	<b>\$209</b>	\$309	\$359	\$389	\$445	<b>\$499</b>	<b>\$439</b>	<b>\$309</b>	<b>\$359</b>	<b>\$389</b>	\$289	\$349	<b>\$329</b>
ST 296N 80MB/28MS	<b>\$289</b>	\$385	\$435	--	--	----	----	<b>\$379</b>	----	----	\$359	----	----
ST 1096N 80MB/20MS	<b>\$299</b>	\$399	\$449	\$469	\$525	<b>\$589</b>	<b>\$519</b>	<b>\$395</b>	<b>\$449</b>	<b>\$469</b>	\$375	\$435	<b>\$409</b>

New Low Prices On Trumpcard & Trumpcard Pro Packages

**Quantum Drives**

**LOW PRICES!**

DRIVES	DRIVE ALONE	TRUMPCARD 2000	TRUMPCARD PRO2000	TRUMPCARD 500	TRUMPCARD PR 500	GRAND SLAM 500	GRAND SLAM 2000	SUPRA WORD-SYNC 2000	GVP Ser II HC 0MB -Not Exp.	GVP Ser II HC 0MB Exp- 8MB	DataFlyer 2000	Malibu Board 2000	
52LPS	<b>\$229</b>	\$329	\$379	\$409	\$465	<b>\$525</b>	<b>\$459</b>	<b>\$329</b>	<b>\$379</b>	<b>\$409</b>	\$305	\$369	<b>\$339</b>
105LPS	<b>\$379</b>	\$479	\$525	\$555	\$609	<b>\$665</b>	<b>\$609</b>	<b>\$479</b>	<b>\$529</b>	<b>\$555</b>	\$455	\$519	<b>\$489</b>
210MB	<b>\$699</b>	\$809	\$849	\$879	\$925	<b>\$979</b>	<b>\$929</b>	<b>\$799</b>	<b>\$849</b>	<b>\$879</b>	\$785	\$849	<b>\$819</b>

800-558-0003

**Since 1982**  
**ComputAbility**  
**Consumer Electronics**

800-558-0003

**GOLDENIMAGE®****Cordless Mouse**

with Deluxe Paint II ..... \$75

**Cordless TrackBall**

with Deluxe Paint II ..... \$85

**The Brush**

with Deluxe Paint II ..... \$99

**Hand Scanner**

with Migraph Touch-Up

Software &amp;

Deluxe Paint II ..... \$299

**DRIVES:**

Master 3A-1- The Original

3.5" Micro Floppy External for

500/1000/2000 ..... \$79

**Master 3A-1D**

3.5" Micro Floppy External with

LED Track Display to

500/1000/2000 ..... \$99

**MICE:**

Optical House

with Special Mouse Pad ..... \$45

**Amiga Mouse**

Replacement ..... \$35

**AMIGA 500  
UPGRADE KIT**880K Disk Drive +  
512K RAM Expansion **\$119****SHOWMAKER****Makes Desktop****Video a Reality!**

- Synchronize video & sound to the beat!
- Control external devices like the Video Toaster, LaserDisc, VCRs, Writable Optical Disks, MID!

**\$199.95****Professional Page 2.0****Powerful, Easy to Use, Desktop Publishing!**

- Free training video
- Excellent dot matrix output
- Built-in word processor & spell checker
- Rotate text or graphics!

**\$164.95****• AMIGA • AMIGA • AMIGA •****• • RECREATION • •****• AMIGA • AMIGA • AMIGA •**

A10 Tank Killer	30.95	Conan the Cimmerian	30.95	Full Metal Planet	30.95	Lemmings	30.95	Pro Tennis Tour 2	31.95	Stunt Track Racer	24.95
Abyss	24.95	Conflict: Middle East	36.95	Galactic Empire	24.95	Lost Patrol	31.95	Quest for Glory 1 or 2	36.95	Stratego	30.95
Anarchy	24.95	Conquest of Camelot	36.95	Gateway to the Savage Frnr	31.95	M-1 Tank Platoon	36.95	Railroad Tycoon	36.95	Street Rod or Street Rod II	25.95
Arachnophobia	30.95	Continuum	30.95	Germ Crazy	36.95	Magnetic Scrolls	36.95	Red Baron	36.95	Strike Aces	30.95
Armada 25/25	31.95	Corporation	30.95	Genghis Kahn	36.95	Mavis Beacon Typing	31.95	Red Storm Rising	34.95	Strip Poker 2	24.95
Amiga Classics Trilogy: (Stargilder II, Carrier Cmdrd, Midwinter)	36.95	Crime Does Not Pay	30.95	Golden Axe	17.95	McGee Fun Fair	24.95	Renegade Legion	37.95	Super Off Road Racing	14.95
Armour Geddon	28.95	Curse/Azores Bonds	31.95	Gold of the Aztec	30.95	Mega Fortress	37.95	Rise of the Dragon	36.95	Swap	30.95
Awesome	36.95	Das Boot Submarine	31.95	Gunboat	30.95	Mega-Traveller 1	36.95	Risk	24.95	Team Yankee	36.95
Atomino	31.95	Death Knights of Krynn	31.95	Halls of Montezuma	30.95	Mercenaries	37.95	Robocop II	28.95	Teenage Mutant Ninja Turtles	28.95
BAT	31.95	Dick Tracy	30.95	Hardball II	30.95	Medieval Warrior	30.95	Romance of 3 Kingdoms	42.95	Terrain Envoy	28.95
Battalion	31.95	Distant Sun V.4.0	61.95	Harpoon	37.95	Megafortress: Mission Disk #223.95	37.95	Test Drive II	30.95	Test Drive III	CALL
Ball Game	24.95	Dragon's Lair	30.95	Habitat 2, 3, or 4	20.95	Might and Magic II	37.95	Scrabble Deluxe	30.95	Their Finest Hour	20.95
Bane / Cosmic Forge 1MEG	36.95	Dragon's Lair II/Time Warp	34.95	Scenario Editor	25.95	Mind Link	28.95	Search for the King	36.95	Third Courier	30.95
Bard's Tale III	31.95	Dragon Wars	30.95	Harpoon Challenger Pak	57.95	Mixed-Up Mother Goose	30.95	Secret of Monkey Island	37.95	ThunderHawk	30.95
Battle Chess	28.95	Drakhen	36.95	Heart of China	36.95	Monopoly	30.95	Secret of Monkey Island 2	37.95	Time Machine	34.95
Battle Isle	31.95	DuckTales	28.95	Heros Quest	36.95	Overlord	30.95	Secret of the Silver Blades	31.95	Tracor II	41.95
Battle Squadron	24.95	Dungeone Master	24.95	Holyes Book of Games 1 or 2	21.95	Nations at War	37.95	Sex Vixens-Otter Space	22.95	Ultima 5	36.95
BattleStorm	30.95	Eagle's Rider	30.95	Hoverforce	30.95	Night Shift	17.95	Sextimates	30.95	UMS: Nations at War	36.95
Bill & Ted's Excellent Advtr	24.95	East vs West Berlin	24.95	Hunt for Red October	20.95	Nitro	28.95	Shadow of the Beast II	36.95	Universe 3	31.95
Bill Elliot Nascar Challenge	30.95	ECO Phantoms	24.95	Immortal	31.95	Nobunga's Ambition	36.95	Shadow Sorcerer	31.95	Universal Military Sim 2	36.95
Billy the Kid	23.95	Elvira	36.95	Imperium	25.95	Obitus	36.95	Shuttle	36.95	Vaxine	24.95
Birds of Prey	31.95	Empire	31.95	Indiana Jones-Graphic	20.95	Operation Combat	30.95	Sim City	30.95	Vengeance of Excalibur	30.95
Blood Relations	31.95	Escape from Singes Castle	28.95	Indianapolis 500	31.95	PGA Tour Golf	31.95	Graphic 1 or 2	22.95	Vette	30.95
Blue Max	14.95	Eye of the Beholder	37.95	Jack Nicklaus Unlimited	36.95	Paperboy 2	25.95	Terrain Editor	14.95	Warhead	31.95
Captive	29.95	F-15 Strike Eagle II	36.95	Course Disk #1-#5	15.95	Pick n' Pile	25.95	Sim Earth	30.95	Warlord	30.95
Carmen San Diego/Each	30.95	F-19 Stealth Fighter	36.95	James Bond :Stealth Affair	34.95	Planet of Lust	24.95	Ski or Die	31.95	Welltris	21.95
Centurion	31.95	F-29 Retaliator	31.95	Jones in the Fast Lane	24.95	Police Quest 1	30.95	Sorcerian	36.95	Wolf Pak	34.95
Champions of Krynn	31.95	Faces...Tris III	24.95	Keys To Maramont	30.95	Police Quest II	36.95	Space Ace	34.95	Wonderland	36.95
Chaos-Dungeon Master 2	24.95	Falcon	30.95	King's Quest I Enhanced	36.95	Pools of Darkness	37.95	Space Quest 2	30.95	World Class Soccer	24.95
Chessmaster 2100	31.95	Operation Counterstrike	16.95	King's Quest 2 or 3	30.95	Pools of Radiance	31.95	Space Quest 3 or 4	36.95	Wrath of the Demon	30.95
Chuck Yaeger AFT 2.0	25.95	Operation Fire Fighter	19.95	King's Quest 4 or 5	36.95	Populous	31.95	Spellbound	24.95	Xenomorph	31.95
Civil War	37.95	Fast Eddie Pool	21.95	Knight's In The Sky	36.95	Powervanger	31.95	Star Control	30.95	Yeager's Adv. Train 2.0	25.95
Clue	14.95	Flames of Freedom	30.95	Legend of Faerghal	23.95	Data Disk: WWI	20.95	Star Flight 1 or 2	31.95	Zone Warrior	25.95
Codenome: Iceman	36.95	Flight of the Intruder	36.95	Leisure Suit Larry 2 or 3	36.95	Prince of Persia	24.95	Stellar 7	21.95		

**• AMIGA • AMIGA • AMIGA •**

A Talk III	59.95	Comic Art Disks ea.	20.95	Excellence V.2.0	104.95	Phasar 4.0	54.95	Scene Generator	29.95	Video Effects 3-D	106.95
Adventures in Math	24.95	Copyright	28.95	GFA Basic 3.5	87.95	Photon Paint 2.0	87.95	Scenery Animator	57.95	Video Tiltor V1.5	92.95
Ami Back Moonlighter	44.95	Cross DOS 2.0	24.95	Gold Disk Office	166.95	Pix Mate	37.95	Showmaker	199.95	Video Tools	172.95
Amos	53.95	Deluxe Music Construction	61.95	Image Finder	41.95	Power Windows 2.5	54.95	Soft Clips Vol. 1, 2, 3 or 4	44.95	VideoScape 3D V2.0	119.95
Amos Compiler	44.95	DeluxePaint IV	112.95	Imagine	179.95	Pro Video Gold	124.95	Spectracolor	57.95	VIP Video Interface	104.95
Anti Virus Device	41.95	Deluxe Print II	51.95	Invision +	174.95	Pro Video Post	167.95	Sterling Service BBS	84.95	Vista Professional	81.95
Arexx	27.95	Deluxe Productions	128.95	Karatofea	44.95	Pro Write 3.1	84.95	Superbase 4	284.95	Voice Recognition	109.95
Art Department Pro	129.95	Del Vid w/Del Photolab	94.95	Lattice C 5.01	187.95	Professional Draw	112.95	Superbase Personal 2	79.95	Word Perfect	144.95
Audio Master 3	64.95	Design Works	72.95	Macro Paint	78.95	Professional Page 2.0	164.95	Superbase Pro 3.0	189.95	Works, Platinum	99.95
Aztec C Developer V5.0	177.95	Digidroid	59.95	Map Master for Lightwave 3D	57.95	Structured Clip Art	36.95	Superplan	87.95	World Atlas 2.0	28.95
Aztec C Pro V5.0	119.95	Digitmate 3	24.95	Map Master for Imagine	41.95	Templates	36.95	T.V. Show V2.0	64.95	WShell	28.95
BAD 4.0	28.95	Digipaint 3.0	58.95	Maverick	24.95	Project D V2.0	35.95	Tiger Cub	54.95	X Copy Professional	47.95
Bars & Pipes	119.95	Digiview Gold	114.95	Mavis Beacon Typing	31.95	Proper Grammar	57.95	Title Page	104.95	Your Family Tree	39.95
Bars & Pipes Pro	204.95	Director 2.0	75.95	Mega Paint	174.95	Quarter Back	39.95	Toaster Fonts V. 1-5 each	41.95		
Baud Bandit	28.95	Disk Labeler	24.95	Mind Link	28.95	Quarter Back Tools	49.95	Transwrite	39.95		
Broadcast Tilter 2.0	204.95	Disk Master	28.95	Movie Setter	41.95	Quick Write	43.95	Turbo Silver w/ Terrain	56.95		
Byte N' Back	39.95	Disney Animation Studio	79.95	Music X	169.95	Raw Copy	34.95	Turbo Text	57.95		
Can Do	84.95	Dos 2 Dos	30.95	On Line Platinum	39.95	Roll'em	86.95	TV Text	64.95		
Pro Pack 1	24.95	Draw 4D	147.95	Page Stream V2.1	165.95	RX Tools	35.95	TV Text Professional	99.95		
Comic Setter	41.95	Elan Performer 2.0	87.95	Pelican Press	62.95	Scala	Call	Ultra Design	164.95		

**DELUXE PAINT IV**  
**NEW! \$112.95**

**ORDERING INFO: Specify system.** For fast delivery send cashier's check or money order. Personal & company checks allow 14 business days to clear. P.O.'s welcome. **C.O.D. charges are \$4.00** in Continental U.S.A. include \$4.00 for software orders 5% shipping for hardware, minimum \$5.00. MasterCard & Visa orders please include card #, expiration date and signature. WI residents please include 5% sales tax. HI, AK, FPO, APO, Puerto Rico and Canadian orders, please add 6% shipping, minimum \$6.00. All other foreign orders add 15% shipping, min \$15.00. All orders shipped outside the Continental U.S.A. are shipped first class insured U.S. mail, where available. If foreign shipping charges exceed the minimum amount, you will be charged the additional amount. All goods are new and include factory warranty. We do not accept authorization numbers. Call (414) 357-8181 to obtain a R.A. # or your return will not be accepted. Prices and availability subject to change without notice. Shipping & handling are non-refundable. We ship the latest versions available to us. Updates must be handled by end user directly with the manufacturer. Not responsible for typographical errors. In an effort to be complete, some new products may not be available from the manufacturer at press time.

INFORMATION

414-357-8181 FAX 414-357-7814

P.O. BOX 17882

Milwaukee, WI 53217

HOURS-CST

MON-FRI 9am-9pm

SAT 11am-5pm

NO CREDIT CARD SURCHARGE

**CALL US TODAY!**  
**AMIGA**  
**Commodore**  
**FOR ALL YOUR NEEDS**

## R E V I E W S

*From p. 18.*

nia Access mounting kits will work only with its own external drives; if you have a drive from another manufacturer, you're on your own (though you can still use it externally, of course).

The real test of an expansion box is how compatible it is with existing A2000 cards. California Access claims that the Bodega Bay uses a buffered bus that closely emulates the design of the Amiga A2000's own expansion bus. My own experience in using various hard drive and RAM-expansion products in the Bodega Bay supports this claim.

I had success with hard-drive controllers from GVP, Supra, Commodore, Microbotics, and Nexus, and with RAM boards from Supra, Commodore, and Microbotics. Even the old Micron memory board which failed to operate properly in several previous boxes seems to work fine in the Bodega Bay. The only popular A2000 boards that don't seem to work properly are the ICD RAM and hard-drive controller boards, but ICD reportedly has devised a simple fix for the problem.

Adding a Bodega Bay will not give

your A500 all of the expansion capabilities of an A2000. It does not include a co-processor slot, so you can't add A2000-style accelerator boards (though you can still use accelerators like the CSA MegaMidget Racer, that plug into the processor socket). Nor does it have a video slot, so you can't plug in internal genlock boards, display enhancers, or a Video Toaster. A Toaster-compatible slot is slated for late in the year.

There is room, however, to add a flickerFixer card, using MicroWay's Denise Enhancer Board modification, and if you choose to use ICD's Flicker Free Video card, there is a space on the chassis for mounting the monitor connector. There are also cut-outs for joystick and mouse extension ports on the side, if you feel like home-brewing the required cables.

Is the Bodega Bay the answer to all of your expansion needs? That depends on just how much expansion you plan on doing. If you yearn for a hard drive and more memory, but not much else, you may find that a combination hard drive/memory expansion product designed specifically for the A500 is more compact and less expensive. If

you plan on adding devices such as a multiserial card for a multiline BBS, a huge full-height hard drive or optical disk, or a number of disk drives of varying size and format, the Bodega Bay definitely has what it takes.

## PROPER GRAMMAR

*So you, too, can love having written.*

**By Daryell Sipper**

DESPITE ALL THE modern communication methods, writing is still a necessary, though overlooked, skill. Everybody needs to write—even hardcore Amigaphiles—but not everyone writes well or even enjoys it.

Because computers are supposed to make our lives more manageable, we should use them in the writing process. While on-line spelling checkers and thesauruses help, they can go only so far. Writing tools such as grammar and style checkers already exist (and have

F A X   F A S T

9 6 0 0   B A U D

# CLICKFAX

FULL RECEIVE AND TRANSMIT FAX SYSTEM FOR THE AMIGA

Introducing the extinction of the manual FAX. ClickFAX is a feature-packed, full-spectrum FAX system for all Amiga computers. The system includes an external modem, cable and complete support software.

**SUPER FAST**

**CONVENIENT**

**THREE COMPLETE USER  
INTERFACES**  
**ECONOMICAL**

**FREE DEMONSTRATION**

ClickFAX supports both sending and receiving FAX documents at up to 9600 baud, with 1D or 2D compression—Up to four times faster than other Amiga FAX modems.

The standard telecomm modem capability supports 300, 1200 and 2400 baud with MNP level 3, 4 and 5 support. You never have to disconnect ClickFAX to get onto BBS systems, networks and other services. ClickFAX can read ASCII text files, IFF graphics files and precompressed ".fax" files created by itself or the AE "SendFAX."

You can utilize all of the system's features from the WorkBench using the mouse, from your CLI or Shell using simple typed commands, or via ARexx from any application, script or macro.

All the speed, versatility and convenience of the ClickFAX system, including modem, cable and software, is only \$449.95.

For more information, call (406) 367-5509, and we'll FAX you all the specs and an example of the high quality transmission you can enjoy with ClickFAX.

**BLACK BELT SYSTEMS**

398 JOHNSON RD, GLASGOW MT 59230  
SALES: (800) TK-AMIGA INTERNATIONAL SALES (406) 367-5513 BBS: (406) 367-ABBS FAX: (406) 367-AFAX  
Amiga™ Commodore Business Machines: ClickFAX™ Black Belt Systems

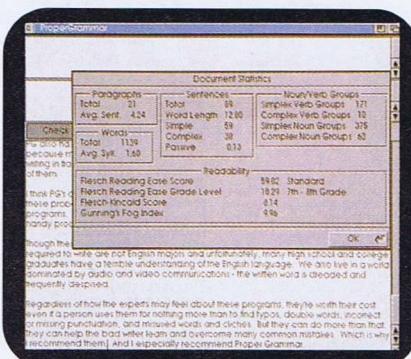
for some time) on other platforms. Now **SoftWood**—a company that has always kept a watchful eye out for the productivity/business potential of the Amiga—offers similar advantages to Amiga users with Proper Grammar (\$99.95).

### ENGLISH 101

Proper Grammar (PG) is a grammar-checking program that also checks for spelling errors. Beyond that, however, it also looks for cognitive, typographical, and editing errors. PG multitasks, provides an ARexx port, supports the Clipboard device and is system 2.0 compatible. Like its companion program, The Electric Thesaurus (see *AmigaWorld*, May '91, p. 97), PG is based on Houghton Mifflin's Computer-Aided Proofreading software line.

PG is one of the friendliest programs I have ever used. It has an intuitive interface and is easy to install on a hard drive. The well-organized manual is an effortless read. What's more, Softwood provides excellent technical support.

With PG installed on my hard drive, I loaded the program and investigated its pull-down menus and basic inter-



**PG will help you monitor your verbiage.**

face. I was amazed at how easy it was to learn. This is one of those rare programs that you can use without opening the manual.

After I loaded several text files I had written, PG found a few things it didn't like. Some of the "mistakes" I agreed with, but others I didn't. After all, PG has no idea of what my intent is—no grammar-checking program does. Obviously, you do not have to do what PG tells you to do, but an understanding of the English language will help you to make better decisions.

There is much to like in PG, especially its ability to explain grammar rules. You can ask the program to show you why something is incorrect. This is useful for the beginning writer.

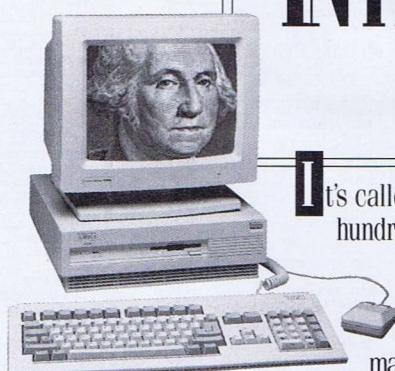
Several document statistics are available to help you evaluate your writing. Information about word, sentence, and paragraph usage is displayed, as well as some facts about noun-verb usage. Standard readability indexes are given, such as Gunning's Fog index or the Flesch-Kincaid score. These are handy numbers, because some assignments require writing to specific reading levels using one or more of these indexes.

I also like being able to ignore any grammar rule I choose. For example, if I wanted to start sentences in this review with "And" or "But" to achieve a conversational style, all I would have to do is turn off the relevant rule before checking this piece.

PG's spell-checking feature is solid. It recognizes 135,000 words, including contractions. You can even add some words of your own, if you wish.

The program provides such basic  
*Continued on p. 84.*

## COMMODORE INTRODUCES CRASH INSURANCE.



**I**t's called the Commodore® Extended Service Contract. And it could save you hundreds of dollars in the remote chance that your Amiga® goes down.

That's because most repairs not covered by warranty typically cost more than a one-year service plan.

Extended Service for your Amiga 2000™ series or 3000™ series machine is fast and easy. We offer next day on-site service for CPUs.\* And

next day exchange for monitors, keyboards and other accessories.\* We use only original manufacturer parts. And there's a toll-free 24-hour Help Desk for trouble shooting problems.

For more information about our Extended Service plans, see your authorized Commodore dealer or call 1-800-66-AMIGA.

It's your best protection in the event of a sudden crash.

\*If call is received before 3pm local time and repair parts are available. Warranty limited to original purchaser. Only approved Commodore products eligible for coverage. Software not covered. Hardware must be certified to be in good working order if contract is purchased after original one-year warranty. ©1991 Commodore and the Commodore logo are registered trademarks of Commodore Electronics Ltd. Amiga is a registered trademark of Commodore-Amiga, Inc.



Circle 9 on Reader Service card.

# GO AMIGO!

800-BE-AMIGA (800-232-6442)

## ACCELERATORS

MEGA MIDGET RACER 25mhz	639.00
MEGA MIDGET RACER 33mhz	738.00
MEGA MDGT RCR 25MMZ ECO	488.00
MEGA MDGT RCR 33MMZ ECO	568.00

## AUDIO HARDWARE

AMAS MIDI SAMPLER	129.00
CMI MIDI 1 (EXT.)	56.95
ECS MIDI 1000	49.95
ECS MIDI PLUS	49.95
MIDI GOLD 500	59.95
MIDI GOLD INSIDER	84.95
PERFECT SOUND 500/2000	89.95
SONGMASTER	138.00

## COMMODORE

A10 STEREO SPEAKERS	23.95
A2000 ARCBET LAN	189.00
A2005 ETHERNET LAN	289.00
A2091 AUTOBOOT CNTRLR	149.00
A2232 MULTI SERIAL AD	289.00
A2300 INT GENLOCK2000	289.00
A2320 VIDEO ENHANCER	289.00
A520 COMP. ADAPTER	41.95
A2000 DRIVE REPLACEMENT	89.95

## FLOPPY DRIVES

AE HIGH DENSITY DRIVE	184.00
ROCTEC 5.25" FLOPPY	159.00
ROCTEC SLIM EXT. 3.5"	84.95

## MEMORY EXPANSION

ADRAM 605 INT 512K	59.95
ADRAM 640 4/4 MEG INT	89.00
ADRAM 660D 2 MEG A540	CALL
BASEBOARD A500 4/4MB	111.00
MINIMIGS A1000 2MB	258.00
MINIMIGS A500 2MB	249.00
SUPARAM 500 1/2 MEG	59.95
SUPARAM 500RX 1MB	124.00
SUPARAM 500RX 2 MB	188.00

## MODEMS

BAUD BANDIT MODEM	105.00
BAUD BANDIT MODEM L5	169.00
GALAXY APOLLO 9600	448.00
SUPRA 2400 BAUD MODEM	89.00
SUPRA 2400 BAUD MNP	155.00
SUPRA 2400 BONMP+	185.00
SUPRA 2400 INT. MODEM	118.00
SUPRA 8600 V.32	488.00

## MONITORS

NEC MULTISYNC 30	698.00
NEC MULTISYNC IA	650.00
SEIKO 1440 BAUD MNP	528.00
SUPRA 1304 MULTISYNC	779.00

## PRINTERS

CITIZEN GSX140 24 PIN	329.00
CITIZEN GSX200 5 PIN	185.00
LASERJET III PRINTER	CALL

## VIDEO HARDWARE

AMIGEN GENLOCK	87.95
ASDG EPSON DRIVER	120.00
B2D 5000	1985.00
COLOR SPLITTER	109.00
DENISE EXTENDER BUS	85.00

## DISPLAYS

DIGI VIEW GOLD 4.0	119.00
DIGIVIEW GOLD 4.0 PAL	134.00
EPSON ES-30DC SCANNER	1385.00
FICK, FIX TO GENLOCK	87.95
FICKLER FIXER	248.00
FICKLER FIXER PAL	300.00
FRAMEGRABBER	449.00
FRAMEGRAB PAL VERS	659.00
FRAMEGRAB/256 GRAY	628.00
FRAMEGRAB/256 PAL	659.00

## SCANNERS

HAM-E PLUS	377.00
LENS 16MM NO IRIS	18.95
LENS 16MM W/IRIS	53.95
LIVE! 1000	249.00
LIVE! 2000	349.00
LIVE! 500	309.00
MAGNI 4004	1048.00
MAGNI 4045	1049.00
MINIGEN GENLOCK	189.00
MINIGEN PAL GENLOCK	239.00
NERIK GENLOCK	179.00
NUCLEAS PERSONAL SRC	399.00
PANASONIC WV1410	189.00
PANASONIC WV1500X	319.00
PERSONAL TBC	CALL
SHARP JX300 SCANNER	2095.00
SHARP JX450 SCANNER	5195.00
SUPERGEN 2000S	1350.00
SUPERGEN GENLOCK	649.00
TCRG 102	649.00
VIDEO MASTER GENLOCK	995.00
VIDI CHROME COLOR MOD	29.95
VIDECH SCANLOCK	788.00

## VIDEOTEX SCANLOCK PAL

1149.00

## VIDEO BLENDER

1135.00

## VIDEOTEX INTERFACE

97.95

## MISC. HARDWARE

### A MAX II MAC EMULATOR

135.00

### AUTOLINK

44.95

### BIGFOOT 150 POWER SUP

87.95

### CMI MULTIPORT BOARD

195.00

### CMS SYQUEST 45MB HD

488.00

### DISK DROID

67.95

### MONITOR STAND A500

27.95

### PERFECT SOUND ADAPTOR

10.95

### X-SPICES 3D

84.95

## HOT GRAPHICS SOFTWARE

### 3D TEXT ANIMATOR

29.95

### ANIMAGIC

87.95

### DAKOTA SKETCH MASTER

419.00

### SKETCH MASTER 12X18

619.00

### DOUBLE TALK A2000

389.00

### DUAL SERIAL TALK

269.00

### FATTER AGUS SWITCH

21.95

### FATTER AGUS SWITCH'R'

95.00

### IC AGUS: FATTER(1MB)

99.00

### IVS GRAND STARD 2000

CALL

### KICKSTART 1.3 ROM

39.00

### MACH2 CHIP

259.00

### OMNIKEY ULTRA

182.00

### PROFESSIONAL SCANLAB CALL

CALL

### SONY DISK 10 PACK

12.95

### SONY DISK 10.5" 10 PK

7.95

### SONY DISK 5.25" DSHD

11.95

### SONY DISK 5.25" DSHD 5 PACK

9.95

### SONY DISK 10.5" DSHD 5 PACK

9.95

### SONY DISK 10.5" DSHD 10 PK

19.95

### SONY DISK 10.5" DSHD 20 PK

39.95

### SONY DISK 10.5" DSHD 50 PK

79.95

### SONY DISK 10.5" DSHD 100 PK

159.95

### SONY DISK 10.5" DSHD 200 PK

319.95

### SONY DISK 10.5" DSHD 500 PK

639.00

### SONY DISK 10.5" DSHD 1000 PK

1278.00

### SONY DISK 10.5" DSHD 2000 PK

2556.00

### SONY DISK 10.5" DSHD 5000 PK

5195.00

### SONY DISK 10.5" DSHD 10000 PK

10395.00

### SONY DISK 10.5" DSHD 20000 PK

20790.00

### SONY DISK 10.5" DSHD 50000 PK

41580.00

### SONY DISK 10.5" DSHD 100000 PK

83160.00

### SONY DISK 10.5" DSHD 200000 PK

166320.00

### SONY DISK 10.5" DSHD 500000 PK

332640.00

### SONY DISK 10.5" DSHD 1000000 PK

665280.00

### SONY DISK 10.5" DSHD 2000000 PK

1330560.00

### SONY DISK 10.5" DSHD 5000000 PK

2661120.00

### SONY DISK 10.5" DSHD 10000000 PK

5322240.00

### SONY DISK 10.5" DSHD 20000000 PK

10644480.00

### SONY DISK 10.5" DSHD 50000000 PK

21288960.00

### SONY DISK 10.5" DSHD 100000000 PK

42577920.00

### SONY DISK 10.5" DSHD 200000000 PK

85155840.00

### SONY DISK 10.5" DSHD 500000000 PK

170311680.00

### SONY DISK 10.5" DSHD 1000000000 PK

340623360.00

### SONY DISK 10.5" DSHD 2000000000 PK

681246720.00

### SONY DISK 10.5" DSHD 5000000000 PK

1362493440.00

### SONY DISK 10.5" DSHD 10000000000 PK

2724986880.00

### SONY DISK 10.5" DSHD 20000000000 PK

5449973760.00

### SONY DISK 10.5" DSHD 50000000000 PK

10899945440.00

### SONY DISK 10.5" DSHD 100000000000 PK

2179988880.00

### SONY DISK 10.5" DSHD 200000000000 PK

4359776160.00

### SONY DISK 10.5" DSHD 500000000000 PK

8719523320.00

### SONY DISK 10.5" DSHD 1000000000000 PK

17438946640.00

### SONY DISK 10.5" DSHD 2000000000000 PK

34877893280.00

# Hot Summer Sale!

MONTY PYTHON'S CIRCUS .....	32.49
NITRO .....	28.95
NY WARRIORS .....	32.49
PERSIAN GULF INFERNO .....	14.95
PICK 'N PILE .....	27.95
PIONEER PLAGUE .....	10.00
POWERDROME .....	13.95
POWERPINBALL .....	23.95
PRINCE OF PERSIA .....	25.95
SHADOW OF THE BEAST .....	25.95
SHADOW OF THE BEAST II .....	34.95
SHOOT 'EM UP CONSTRUC .....	13.95
SPACE ACE .....	33.95
SPEEDBALL 2 .....	32.95
SPOT - THE 7UP GAME .....	25.95
SWORD OF SODAN .....	15.95
TEENAGE MUTANT NINJAS .....	29.95
TURRICAN II .....	32.95
<b>FLIGHT SIMULATION</b>	
A-10 TANK KILLER .....	32.95
BLUE MAX .....	34.95
CHUCK YEAGER'S ADV FLT .....	27.95
F-18 COMBAT PILOT .....	13.95
F-19 STEALTH FIGHTER .....	34.95
F-18 INTERCEPTOR .....	13.95
F-29 RETALIATOR .....	28.95
FALCON .....	32.95
FALCON MISSION DISK .....	15.95
FALCON MISSION DISK 2 .....	17.95
FLIGHT SIMULATOR II .....	32.49
SCENERY DISK #7 .....	19.95
SCENERY DISK #9 .....	19.95
SCENERY DISK #11 .....	19.95
SCENERY DISK STARTER .....	37.95
SCENERY DISK W.EUROPE .....	19.95
SCENERY DISK, JAPAN .....	19.95
THEIR FINEST HOUR .....	24.95
WINGS .....	34.95
<b>ROLE PLAYING</b>	
B.A.T. ....	34.95
BARD'S TALE .....	13.95
BARD'S TALE II .....	13.95
BARD'S TALE III THIEF OF FATE .....	34.95
CAPTIVE .....	32.95
CHAMBER OF SCIMUTANT .....	29.95
CHAMPIONS OF KRYNN .....	34.95
CURSE OF THE AZURE BONDS .....	34.95
DRAGON WARS .....	32.95
DRAKKHEN .....	36.95
DUNGEON MASTER .....	23.95
CHAOS STRIKES BACK .....	23.95
ELVIRA: MISTRESS OF THE DARK .....	38.95
EYE OF THE BEHOLDER .....	38.95
HERO'S QUEST II: TRIAL BY FIRE .....	38.95
IMMORTAL .....	30.95
IT CAME FROM DESERT .....	34.95
IT CAME FROM DESERT 2 .....	13.95
MIGHT & MAGIC II .....	40.95
NEUROMANCER .....	28.95
OBITUS W/T SHIRT .....	34.95
POOL OF RADIANCE .....	34.95
SEARCH FOR THE KING .....	38.95

SECRET OF MONKEY ISLAND .....	38.95
SPIRIT OF EXCALIBUR .....	32.49
ULTIMA IV .....	32.95
ULTIMA V .....	35.95
WIZARDRY .....	
BANE OF THE COSMIC FORCE .....	38.95
WRATH OF THE DEMON .....	29.95
<b>SPORTS</b>	
ART OF GO .....	35.95
BATTLE CHESS .....	31.95
GRETZKY HOCKEY .....	32.49
HARD DRIVIN' .....	31.95
HARD DRIVIN' 2 .....	32.95
HARDBALL II .....	32.49
HARDBALL II DATA DISK .....	12.95
HOCKEY LEAGUE SIMULATOR .....	22.95
HOLE IN ONE GOLF .....	23.95
ISHIDO .....	35.95
INDIANAPOLIS 500 .....	34.95
JACK NICKLAUS UNLIMITED .....	58.95
JACK NICKLAUS CLSC 1 .....	12.95
JACK NICKLAUS COURSE 1 .....	14.95
JACK NICKLAUS COURSE 2 .....	14.95
JACK NICKLAUS COURSE 3 .....	14.95
JACK NICKLAUS COURSE 4 .....	14.95
JACK NICKLAUS COURSE 5 .....	14.95
MONOPOLY .....	32.95
NUCLEAR WAR .....	34.95
OVERLORD .....	32.95
POPULOUS .....	29.95
POPULOUS DATA DISK #1 .....	18.95
SIMCITY .....	32.49
TERRAIN EDITOR .....	13.95
ANCIENT CITIES .....	23.95
FUTURE CITIES .....	23.95
STAR CONTROL .....	28.95
STELLAR-7 .....	23.95
TESTDRIVE II .....	32.49
TETRIS .....	18.95
CALIFORNIA CHALLENGE .....	14.95
FACES...TRIS III .....	24.95
WELLTRIS .....	24.95

## ACTION/STRATEGY

BANDIT KINGS OF CHINA .....	38.95
CARTHAGE .....	25.95
CENTURION .....	34.95
DES BOOT .....	34.95
EMPIRE .....	34.95
GENGHIS KHAN .....	38.95
GUNBOAT .....	32.95
HARPOON .....	41.95
BRIDGE 6.0 .....	25.95
BATTLESET #2 .....	20.95
BATTLESET #3 .....	20.95
SCENARIO EDITOR .....	27.95
INTERCEPTOR, RENEGADE LEGION .....	38.95
M1 TANK PLATOON .....	35.95
NOBUNAGA'S AMBITION .....	38.95
NORTH AND SOUTH .....	28.95
POWERMONGER .....	32.95
RISE .....	25.95
ROMANCE OF 3 KINGDOMS .....	44.95
SILENT SERVICE .....	13.95
UNIVERSAL MILITARY SIM II .....	34.95
WORLDWARS .....	28.95
WOLF PACK .....	35.95
<b>ADULT</b>	
CENTERFOLD SQUARES .....	19.95
STREET ROD II .....	27.95
SWIV (SILKWORM 2) .....	32.95
F-15 STRIKE EAGLE II .....	39.95
FAST EDDIE'S POOL .....	24.95
JAMES BOND: THE STEALTH AFFAIR .....	35.95
KILLING CLOUD .....	29.95
KING'S BOUNTY .....	32.95
LIFE AND DEATH .....	32.95
MEDIEVAL WARRIORS .....	29.95
MEGATRAVELLER 1 .....	38.95
MIG 29 FULCRUM PAL VERS .....	49.95
RAILROAD TYCOON .....	39.95
SECRET OF THE SILVER BLADES .....	34.95
STORM BALL .....	32.95
WAKINIX .....	32.95

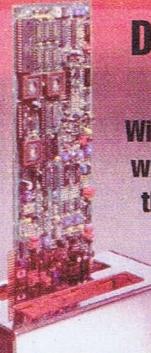
## DCTV From Digital Creations



**\$367.00**

Full NTSC Color  
Display and  
Digitizer.

Best Seller!



**DPS Personal TBC**  
A New Internal Infinite  
Window Time Base Corrector  
with Genlocking for use with  
the Newtek Video Toaster!

For the Incredible Low

Price of:

**\$779.00**

## New From ICD

**AdSCSI 2000 .....** \$129.00



**AdSCSI 2080 .....** \$189.00



**AdSpeed .....** \$209.00



**AdIDE .....** \$99.00



**Flicker Free Video .....** \$277.00

Eliminates interface  
flicker for any Amiga  
computer. Does not  
use video slot.



Now lower  
prices!!!

## Newtek Video Toaster



**\$1399.00**

Digital Video  
Effects!  
Genlock  
Frame Grabber!  
24-bit Paint and  
Rendering!  
3D Modeling and  
Animation!

## Hard Drive Sale

### Controllers

GVP Series II - Non Ram Cap. .... \$159.00 Dataflyer 2000 .....

GVP Series II - Up to 8 megs .... \$199.00 Dataflyer 500 .....

ICD AdSCSI 2000 .....

ICD AdSCSI 2080 .....

IVS TrumpCard 2000 Prof. .... \$199.00 Quantum 52mb LPS .....

IVS TrumpCard 500 Prof. .... \$259.00 Quantum 105 LP3 .....

Supra WordSync .....

Quantum 170 .....

Quantum 210 .....

### Bare Drives

Quantum 52mb LPS .....

Quantum 105 LP3 .....

Quantum 170 .....

Quantum 210 .....

## Supra Corporation



**SupraRam 2000**

2/8mb Board .. \$168.00

SupraRam 2000 4mb RAM .....

233.00

SupraRam 2000 6mb RAM .....

305.00

SupraRam 2000 8mb RAM .....

366.00

SupraRam 500 512k .....

59.95

Due to industry fluctuation, RAM prices are subject to change  
without notice.

## Great Valley Products Series II for the Amiga 500

40mb .....

\$477.00

52mb .....

\$577.00

80mb .....

\$628.00

105mb .....

\$808.00

## GVP Series II Accelerators

New single-board design on 22 & 33 Mhz

These new Series II accelerators

have a built-in GVP SCSI controller

Now holds up to 32 megs of ram!\*

22Mhz .... \$845.00

33Mhz .. \$1579.00

50Mhz ... \$2298.00

\*50 Mhz board, others hold less

All prices good August 1st through August 31st — G1940911

## REVIEWS

From p. 81.  
text-editing features as cut, paste, and copy. In addition, the program retrieves and saves corrected text in many Amiga word-processing formats. Although you won't see any formatting on screen, PG remembers it. This feature provides word-processing file conversion as an added bonus. It's not perfect, but it works.

The manual, whose tutorial is a breeze, goes beyond telling you how to use PG; it also includes usage information and a glossary for those unfamiliar with grammatical terms. There's even an appendix covering the Houghton Mifflin Grammar Correction System. That's a friendly manual.

### BRING IN THE CLOUDS

PG is a solid introduction of this type of program into the Amiga market. It's also one of the most stable programs I've ever used. There are, however, a few disappointments.

PG is not a style checker. In professional writing, different publications require different styles. This holds true for other kinds of writing, too. Ré-

sumés require a different style from internal office memos. Many companies dictate their own in-house writing styles. If you know how to update your startup sequence (by renaming some files), you can customize PG for limited style checking, but I'd like to see this feature incorporated into a future upgrade. Writing styles vary too widely for Softwood to ignore this feature.

In addition to its lack of style-checking ability, PG does not question the use of some commonly confused words, such as principle/principal or hear/here. While the manual acknowledges this shortcoming, a grammar-checking program should identify these usage problem areas, for they represent a weakness in a lot of writing. If nothing else, PG should remind you to check your dictionary.

PG sometimes has difficulty with sentence fragments. This is one of my own weaknesses because my basic writing style tends to be conversational, so I often find myself writing in fragments. I tried many examples of sentence fragments, and PG demonstrated only mixed success in finding them.

I think PG's claim that it corrects 95% of your writing errors is a little high, but what percentage would constitute success in this case? While claims such as these probably contribute to the skepticism many language experts have toward these programs, PG will catch most of the common errors you may make and serve as a handy proofreading companion in many instances.

Although grammar-checking programs in general are far from perfect, I believe they have value, for very few of us have extensive backgrounds in English. In a world dominated by audio and video communications, not enough attention is paid to writing skills, and the written word is often relegated to the status of endangered species.

Regardless of how language scholars feel, programs such as Proper Grammar are worth an investment—even if you use them only for rooting out typos, punctuation errors, and misused words. Even more useful is the fact that they can help you improve your writing by identifying many common mistakes. This is why I recommend them. ▶

**NEW!**  
Version 3

## MAVERICK for the AMIGA

### Five Years Of Experience On A Single Disk

When we started making Commodore backup products, we started making history. Our Maverick for the Commodore has become the single most successful archival utility system ever created for the C64/C128 computers. We pioneered innovations that made Maverick the ONLY logical choice for the serious user. History is repeating itself.

Our new Maverick for the Amiga is a ground breaking product! It is unlike anything you've ever seen for the Amiga before. You use it without fumbling for pull-down menus or searching through overlapping windows. The Maverick Amiga screen is a clean, modern control panel designed to allow you to intuitively operate the system as if it were a physical piece of hi-tech equipment.

Options abound. These include features like:

- ★ Hypercopy: High speed, effortless, error free data duplication.
- ★ Parameters: Our own custom routines backed by 5 years of experience.
- ★ OverRide™: A new tool that makes a program useable on a hard drive by COMPLETELY de-protecting it!
- ★ Inspector: Our MFM track editor featuring whole track or data block modification capability macros for automation and best of all - Backup Buddy compatible!
- ★ 'Backup Buddy' support to allow easy, reliable backups of some of the toughest to duplicate titles on the market.
- ★ Over 100 new parameters keep you up to date with today's software releases. There's more: For a minimal fee, registered Maverick owners can upgrade their system to the newest version, including new parameters every 90 days! Maverick Amiga was actually designed with future expansion capabilities built right in. And experienced users can even create and store their own custom copiers, accessible right from the main control panel, just as if they were built into Maverick from the factory!
- When you're ready to spend your hard-earned money for an Amiga backup utility, keep this in mind: There are lots of copiers on the market, but there's only one complete archival utility system — Maverick.

**MAVERICK AMIGA V3**

**ONLY \$39.95**  
+ S&H

Available from your local dealer or contact us directly:



### A MAN'S BEST FRIEND IS HIS DOG AN AMIGA'S BEST FRIEND IS THE 'BACKUP BUDDY'™

Ready to add another drive to your system? We've got some good news for you: for nearly the same price as an ordinary drive, you can buy the brand new Maverick Amiga Backup Buddy' drive!

The 'Backup Buddy' drive (sold ONLY to registered Maverick Amiga owners) is a superb Golden Image drive that we've worked our special magic on. We've added our own custom engineered speed control circuitry to create a unique new tool. Used alone, the Backup Buddy is as fast, reliable, and compatible as any other Amiga external disk drive. But, used with the Maverick Amiga, the Backup Buddy becomes the newest weapon in the Archival Utility System arsenal, easily letting you backup titles that could NEVER be reliably duplicate before now! The 'Backup Buddy' is another demonstration of our commitment to the Maverick tradition: Always be the best.

**THE 'Backup Buddy' DISK DRIVE**

**ONLY \$149.95**  
+ S&H

Available Only From Software Support International  
to registered Maverick Amiga owners.

## SOFTWARE SUPPORT INTERNATIONAL

2700 N.E. ANDRESEN ROAD • SUITE A-10 • VANCOUVER, WASHINGTON 98661

Write or call us for more information or our current catalog listing 1000's of items for your computer

**1-800-356-1179**

Circle 47 on Reader Service card.

## PRODUCTIVITY

Pagestream 2.0 .....	\$169
Pen Pal .....	85
Pro Write .....	94
Pro Page 2.0 .....	169
Desktop Budget .....	44
Advantage .....	119
Office .....	109
Structured Clip Art .....	39
Compugraphic Fonts .....	119
Softclips People, Classics .....	49
Pelikan Press .....	64
Pagesetter II .....	74
Superbase IV .....	289
All in One .....	51.95
X-Cad Professional .....	125
Can Do .....	84
Deluxe Print II .....	50.95
Showmaker .....	214
Screenmaker .....	CALL
Wordperfect .....	155

## MEMORY EXPANSION

Baseboard Ok .....	\$109
ICD AdRam 540 .....	99
Ram Works 2000 Ok .....	109
Supra 8mb board w/2mbCALL	CALL
Supra 512k for A500 .....	59
1 X 4 Sims .....	CALL
256 K X 4 80 Dram .....	CALL
1 mg x 1 80 Dram .....	CALL
3000 memory upgrade .....	CALL
GVP Ram 8 .....	CALL

### CITIZEN PRINTERS

GSX140, 24 pin .....	\$289
Color Option Available	\$169

## GRAPHICS & VIDEO

Amigavision .....	\$89
Animagic .....	88
Art Department .....	52
Art Department Pro .....	139
Bread & Butter Fonts .....	CALL
Pro-Video Gold .....	147
Broadcast Titler II .....	219
Cinnamon Toast Fonts .....	59
Color Splitter .....	105
Disney Animator .....	97
Deluxe Paint 3 .....	89
Digitmate 3 .....	23
Digipaint 3 .....	62
DigiView Gold 4.0 .....	119
Kara Anim Font 1,2,3 .....	29
Image Finder .....	40
Imagine .....	189
Photon Paint .....	39
Pixel 30 .....	52
Pro-Video Post .....	147
Turbo Silver .....	59
T.V. Text Pro .....	98
T.V. Show 2.0 .....	58
Video Fonts 2 .....	64
Vista Pro .....	85

## Gold Disk Office

over \$500 worth of software!

- Word Processor
- Spreadsheet
- Desktop Publisher
- Database
- Business Graphics

"...Powerful business programs that are as easy to use as they are to buy." Amiga World (2/91)

ONLY \$109



## THE ICD ADVANTAGE New From ICD!

### AdSCSI 2000

Hard drive interface with unmatched speed and flexibility.

### AdSCSI 2080

Hard drive interface with up to 8 megs of FAST RAM.

### AdSpeed

Best overall performance of any accelerator in its price range.

### AdIDE

Smallest Amiga hard drive interface made. For IDE (AT) drives.

### Flicker Free Video

Eliminates interlace flicker for any Amiga computer.

### Nova 20i

20mb hard drive. Mounts inside A500

### SPECIAL!

AD RAM 540 for A500

\$99

Call for Chip Prices

## N.J.'s Premier Amiga Dealer!

# MANTA

AUTHORIZED AMIGA SALES & SERVICE CENTER

Call for current price quotes & latest releases!  
Many more items in stock at the lowest prices!

## GOLDENIMAGE®

Master 3A-1	\$79.00
3.5, 880K disk drive .....	
Hand Scanner	\$239.00
with touchup, high resolution .....	
Optical Mouse .....	\$50.00
Opto Mechanical Mouse .....	\$36.00
Amiga RC-500	\$49.00
512K RAM with clock for A500 .....	
Cordless Mouse	CALL
Amiga, 200 DPI, w/DeluxePaint II .....	
Cordless Trackball	CALL
Amiga, 300 DPI, w/DeluxePaint II .....	
RC-1000	CALL
4 MB for A500 .....	

1 year warranty on all Golden Image products.

## ENTERTAINMENT

Awesome .....	\$36
Bards Tale III .....	31
Blue Max .....	31
Centurian .....	CALL
Das Boot .....	31
Dragons Lair 2 .....	40
Dungeon Master 2 .....	CALL
Falcon .....	31
Finest Hour .....	820
F-19 Stealth .....	37
Flight of Intruder .....	37
Gun Boat .....	31
Killing Cloud .....	CALL
Lemmings .....	31
Life & Death .....	CALL
Mon. Night Football .....	36
Nam .....	\$38
PGA Tour Golf .....	31
Railroad Tycoon .....	CALL
Search for King .....	37
Shadow of Beast 2 .....	37
Speed Ball 2 .....	CALL
Wings .....	31
Wrath of Demon .....	31

EUROPEAN TITLES AVAILABLE  
CD TITLES AVAILABLE

## HARDWARE

Flicker Fixer .....	\$235
Quantum 40, 52, 105 (Low Prices) .....	CALL

Ham-E .....	CALL
Firecracker 24/2 MG .....	\$829

Data Flyer 500 SCSI Interface A-500 .....	\$149
---	-------

Mega Midget Racer 33 MHZ, 25 MHZ .....	CALL
--	------

SYQUEST 80 MG .....	CALL
44 mg • Removable Drive .....	\$449

At Once .....	Call DC TV .....	CALL
BODEGA BAY .....		CALL

### Monitors

NEC Multisync 3D .....	\$599
Seiko CM 1440 .....	565
Seiko CM 1450 .....	689
Sony .....	CALL
Flicker Fixer .....	239
Sclock .....	769
Videomaster .....	1039

### Genlocks

SuperGen .....	\$609
SuperGen 2000 .....	1349
MagniGen .....	CALL
MiniGen .....	\$189
Scanlock .....	769
Videomaster .....	1039

## MISCELLANEOUS

Amax II .....	150
Amtrack .....	63
Apro Draw II .....	459
Arex .....	28.95
AudioMaster3 .....	64
Bars & Pipes Pro .....	224
Cross DOS .....	25.95
ECE Mid 500/2000 .....	\$49
JSTK Power Play .....	9
Tiger Cub .....	65
Keyboard Skins .....	Your Family Tree .....
500/2000/3000 .....	17.49
Mouse Mat .....	.7
Perfect Sound .....	.69
Quarterback .....	.39.95
Quarterback Tools .....	.52
SAS/Lattice C 5.1 .....	.194
Sound Source .....	CALL
Soundmaster .....	CALL
Your Family Tree .....	.43

## ADVANCED FLIGHT TRAINER™



Experience white-knuckle flying thrills.  
More aircraft, new terrain, Flying Insights™ audio tape,  
on-screen flight school. **FREE CAP!** \$27

## THE ICD ADVANTAGE

### New From ICD!

### AdSCSI 2000

Hard drive interface with unmatched speed and flexibility.

### AdSCSI 2080

Hard drive interface with up to 8 megs of FAST RAM.

### AdSpeed

Best overall performance of any accelerator in its price range.

### AdIDE

Smallest Amiga hard drive interface made. For IDE (AT) drives.

### Flicker Free Video

Eliminates interlace flicker for any Amiga computer.

### Nova 20i

20mb hard drive. Mounts inside A500

### SPECIAL!

AD RAM 540 for A500

\$99

Call for Chip Prices



Circle 34 on Reader Service card.

## AMIGA®

IS YOUR AMIGA SICK?  
**Manta is a Full Amiga Service Center**

We have the parts to put you back on track:

- Rom Chips
- Fatter Agnus
- Drives
- Keyboards
- Power Supplies

## Supra

### All Supra Products Available for Your Amiga. Call!

#### A500

Supra RAM 500 RX .....	Low Price
20 MB 500 XP w/1/2 MG .....	CALL
40 MB 500 XP w/1/2 MG .....	CALL
52 MB 500 XP w/1/2 MG .....	479
105 MB 500 XP w/1/2 MG .....	659

#### MODEMS

Supra Modem 2400 Plus	2400 Bd External
MNP, V.42 .....	\$135

#### 2400 Bd External

\$85

#### 1-800-477-7706

Walk-in Traffic Welcome!

ORDER TOLL-FREE

1-800-477-7706

Walk-in Traffic Welcome!

1-800-477-7706

## REVIEWS

### RASTERLINK

*A facelift and a new identity.*

By Mitch Wells

MORE AND MORE, graphic-conversion programs for the Amiga are offering support for 24-bit graphics. Creating animations in 24-bit planes, however, is a horse of a different color. While Black Belt's HAM-E allows for compressed RAM animations of images limited to 18 bits of color, they run extremely slowly. Both ASDG's Art Department Professional and HAM-E can automatically record frame-by-frame animation to video tape via ARexx and MicroIllusion's Transport Controller software (plus a capable controller and VTR), but to automate the process requires a knowledge of ARexx. Beside all that, ADPro will not display 24-bit images.

Complicating matters even further, neither ADPro nor HAM-E seem to like large bitmaps. Because ADPro loads the entire image into free RAM (and considering that the program itself

takes a lot of RAM), I can't load a 24-bit image larger than a single screen into a 7MB machine. As for 300-DPI black-and-white scans, forget it. Because ADPro tries to convert the image to 8-bit gray scale and hold it in RAM before any conversion can occur, I can edit only very small scans at a time. Image Pro loads large bitmaps, but whenever it does, the program slows down to a crawl.

#### THE CAVALRY

Thankfully, RasterLink (*Active Circuits*, \$199.95) solves these problems and offers features not found in other image-conversion packages: direct support for the Truevision Targa/Vista family of 16/24/32-bit boards, the ACS Harlequin, film recorders, and the new Targa+ series of frame buffers.

The latest version of the program formerly known as ImageLink, RasterLink is an image-conversion package that reads and writes the following file formats right out of the box: Caligari Broadcast (.6rn files), GIF, Digiview 21-bit, IFF (all formats except AHAM and ARES), Macintosh PICT, PCX (an IBM



**RasterLink easily converts your images.**

format), Byte-by-Byte Sculpt RGB, Sun Rasterfile, TIFF, Truevision Targa files, and Impulse RGBN. RasterLink can read images directly from a Targa/Vista board (installed in an A2000 via the Bridgeboard) and save them in any of the supported file formats; and it displays files directly to the ACS Harlequin, Impulse Firecracker 24 or Truevision Targa/Vista boards.

Via supplied ARexx scripts or RasterLink's batch commands, the program can create a 24-bit file directly from Sculpt-Animate (while it's rendering) and either save the file in the format you desire or display it directly on the Harlequin, Firecracker 24, or Targa/Vista boards. The supplied scripts or batch commands can even trigger the Transport Controller to record frames to tape. RasterLink also works with Caligari Broadcast directly; or it loads, displays (on the appropriate hardware), and records a series of saved images from disk. This effectively turns the Amiga into a totally hands-free broadcast rendering machine.

Obviously, RasterLink converts between any of the aforementioned file formats. It not only converts the file formats themselves, however, but also allows you to choose the number of destination colors and whether or not to enable the program's dithering capabilities. In addition, you can dynamically re-size the image with no limits placed on input or destination size. This is possible because RasterLink reads these images in chunks from disk instead of trying to cram the image into memory as with ADPro or Image Pro.

RasterLink is easy to use. Simply choose the input and output destina-

*Continued on p. 90.*

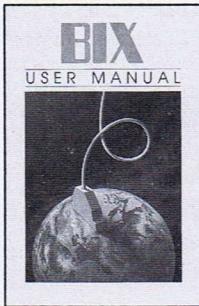
## Who helps Amiga Pros...

- ✓ Get quick answers to tough coding questions ✓ Interact with other Amiga Developers ✓ Download source code, utilities and other programs for the Amiga
- ✓ Keep up with the latest Amiga developments ✓ Send and receive private e-mail with binary attachments ✓ Chat with other Amiga users in real time

BIX - the online service for people who know Amiga.

For just \$39 every three months plus \$3 per connect hour weeknights and weekends or \$6 per connect hour weekdays you can tap the resources of BIX.

Don't miss out! Just have your computer and modem call 800-225-4129 or 617-861-9767 and subscribe on-line. It's easy, at the login prompt enter **bix** and at the Name? prompt enter **bix.amiga**.



800-227-2983 or 603-924-7681

**BIX** ON-LINE

Circle 54 on Reader Service card.

# Sideline Software

## Hold On! How Low Can We Go???

### 1-800-888-9273

840 N.W. 57Th Court Ft. Lauderdale Fla. 33309-Need Info? Call (305)-491-0398 Fax (305)-772-0334  
 Shipping Charges. Mastercard, Visa, American Express U.P.S Ground \$5.00 For Up To 3 Pieces.  
 C.O.D. (Cash Only) U.P.S. Ground \$9.00 For Up To 3 Pieces. Next Day And Second Day Air Available!  
 We Ship All Over The World Please Call For Charges. Prices And Availability Are Subject To Change!

3D International Pool	13.95	Gremlins 2	16.95	Spellbound	14.95	COMPILATIONS!!			
3 Stooges	14.95	Gunship	16.95	Spindizzy Worlds	17.95				
Airstrike U.S.A.	17.95	Harmony/E-Motion	14.95	Starflight	18.95				
All Dogs Go To Heaven	14.95	Hollywood Poker Pro	9.95	Starglider 2	14.95				
Anarchy	14.95	Hotrod	9.95	Strider 2	18.95				
Arcade Fever (2 Games)	16.95	It Came From The Desert	23.95	Stunt Car Racer	16.95				
Archipelagos	9.95	James Pond	16.95	Super Hangon	14.95				
Arkonoid 2	14.95	Journey	16.95	Super Off Road	16.95				
Atomic Robokid	16.95	Karate Kid 2	9.95	Super Ice Hockey	14.95				
Austerlitz	14.95	Keef The Thief	14.95	Sword Of Soda	14.95				
Awesome	28.95	Killing Game Show	21.95	Swords Of Twilight	14.95				
Baal	9.95	Kingdoms Of England	12.95	T.V. Basketball	23.95				
Badlands	16.95	Klaxx	14.95	T.V. Sports Football	18.95				
Ballistyx	14.95	Kult	14.95	Test Drive	14.95				
Bards Tale 2	14.95	Legend Of Faragahl	19.95	Theme Park Mystery	16.95				
Bargames	14.95	Light Corridor	14.95	Thunderstrike	14.95				
Batman The Movie	14.95	Line Of Fire	16.95	Time Machine	18.95				
Battle Command	18.95	Loom	19.95	Tournament Golf	16.95				
Battle Tech	14.95	Lords Of The Rising Sun	18.95	Treasure Trap	16.95				
Betrayel	18.95	Lost Dutchmans Mine	9.95	Turrican	9.95				
Blasteroids	14.95	Master Blazer	16.95	Turrican 2	23.95				
Bloodwych	9.95	Mean Streets	16.95	Ultimate Ride	16.95				
Budakon	18.95	Midwinter	19.95	Viz	16.95				
Cadaver	24.95	Mighty Bomb Jack	16.95	Warhead	18.95				
California Games	14.95	Monty Python	17.95	Warzone	23.95				
Captain Blood	9.95	M.U.D.S.	16.95	Waterloo	14.95				
Carrier Command	14.95	Mystery Of The Mummy	9.95	Weird Dreams	14.95				
Carthage	17.95	Narco Police	16.95	White Death	17.95				
Carve-Up	16.95	Neuromancer	16.95	Windwalker	14.95				
Chips Challenge	17.95	Nightbreed	16.95	Wings Of Death	16.95				
Chronoquest 2	14.95	Nightshift	16.95	Wings Of Fury	16.95				
Chuck Rock	23.95	Ninja Spirits	14.95	Xenon 2	14.95				
Collosus Chess X	16.95	North & South	14.95	Zak McKracken &	Both				
Conflict In Europe	14.95	N.Y. Warrior	16.95	Indy Jones Advent.	21.95				
Conquerer	16.95	Overlander	13.95	<b>New Stuff!!</b>					
Corporation	19.95	P-47 Thunderbolt	14.95						
Crackdown	14.95	Pacland	16.95						
Cyberbowl	16.95	Pacmania	16.95						
Danarius	14.95	Paradroid 90	14.95						
Deathbringer	14.95	Photon Video	19.95						
Dig Dug	9.95	Pirates!	16.95						
Distant Armies	19.95	Photon Paint 1.0	14.95						
Dragonbreed	14.95	Plotting	16.95						
Dragons Breath	16.95	Projectile	18.95						
Dragon Flight	16.95	R-Type	14.95						
Dynasty Wars	14.95	Red Storm Rising	19.95						
E-Swat	17.95	Resolution 101	14.95						
Escape From Colditz	23.95	Rick Dangerous	14.95						
Escape/Robot Monsters	17.95	R.V.F Honda	12.95						
F/A 18 Interceptor	14.95	Satan	14.95						
Fantavision	19.95	Savage!	12.95						
Ferrari Formula 1	14.95	Shadow Of The Beast	18.95						
Firepower	16.95	Sherman M4	14.95						
Flintstones	14.95	Shockwave	16.95						
Flood	18.95	Shogun	16.95						
Frontline	19.95	Silent Service	13.95						
Future Basketball	16.95	Silkworm	14.95						
Gauntlet 2	14.95	Sly Spy	16.95						
Gold Of The Aztecs	17.95	Space Harrier 2	13.95						
Golden Axe	18.95	Spy Who Loved Me	16.95						

### COMPILATIONS!!

#### Wheels Of Fire

Includes:  
 Turbo Outrun\_Hard Driving  
 Chase H.Q.-Powerdrift  
 All For-\$19.95

#### T-N-T

Includes:  
 Dragon Spirit-Toobin  
 A.P.B.-Hard Driving-Xbots  
 All For--\$19.95

#### Heroes

Includes:  
 Star Wars-Barbarian 2  
 Running Man-License To Kill  
 All For--\$18.95

#### Monster Pack

Includes:  
 Shadow Of The Beast  
 Nitro-Infestation  
 All For--\$34.95

#### Amiga Classics

Includes:  
 Carrier Command  
 Starglider 2-Midwinter  
 All For--\$34.95

#### Power Pack

Includes:  
 T.V. Sports Football  
 Xenon 2-Bloodwych  
 Lombard Road Ralley  
 All For--\$24.95

#### Euromags!

Amiga Format W/Disk	10.00
Amiga Action W/Disk	10.00
Amiga Power W/Disk	10.00
C.U. Amiga W/Disk	10.00
Amiga User W/Disk	10.00
Amiga Comp. W/Disk	10.00
Amiga Games W/Disk	10.00
Ace	6.00

# Beat the Summer Blues with our Sizzling Summer Sale.

## VIDEO HARDWARE

Tired of knowing more about Amiga video than the people you buy it from? The technology is expanding so rapidly it's hard to keep up. So we've brought in some video experts to help you make the right selections.

16mm Lens w/ Variable Iris	\$48
Amigen Titling Kit	\$call
CBM2320 Display Enhancer	\$249
Chroma Key Switcher	\$329
Colorburst	\$call
Color Splitter	\$105
DCTV	\$389
DPS Personal TBC	\$779
Firecracker 2400	\$929
Flicker Free Video	\$309
Frame Grabber	\$459
Ham-E	\$289
Hitachi KPC50LB	\$1019
Kitchen Sync	\$call
Minigen	\$189
Panasonic WV1410 Camera	\$179
Showline TBC's (as low as)	\$799
Sony 1304 Monitor	\$689
SuperGen 2000s	\$1399
Supergen	\$649
VideoToaster	\$1,419

## GRAPHICS

Produce perfection. Whether in print, on screen, or in video, your work is a reflection of you. It must be creative and it must be perfectly as you visualize it. Make it so. Because the powerful image, presentation and video tools you need are available to you, on your Amiga.

3D Professional	\$179
Amiga Vision	\$89
Broadcast Titler II	\$229
Digitpaint v3.0	\$59

### SHOWMAKER



ONLY \$229

CONTROL YOUR VIDEO TOASTER!

## HARD DRIVES

Floppies are a pain and you've had enough. You need the freedom and safety of a spacious hard drive. We offer the best hard drives available with the controllers that make sense for your system. Your selection will arrive ready to run because we pre-test and format it.

### SCSI Hard Drives

Maxtor 080MB LP	\$379
Maxtor 213MB HH	\$699
Quantum 052MB LP	\$269
Quantum 105MB LP	\$469
Quantum 210MB HH	\$769
Ricoh 050MB w/case/cart	\$779
Seagate 048MB HH	\$249
Seagate 084MB HH	\$379
Syquest 044MB Removable	\$429
Syquest 044MB w/case/cart	\$629

### AT Hard Drives\*

Maxtor 080MB LP	\$339
Maxtor 213MB HH	\$699
Quantum 052MB LP	\$269
Quantum 080MB HH	\$379
Quantum 210MB HH	\$799
*Pair with GVP 50MHz Acc.	\$2299
AdIDE AT Controller	\$99
AdIDE 40kit (Prima) 139	\$139

Blistering speed means satisfaction. When you double-click, results happen, right now. Let us help you experience this satisfaction.

### Fusion-Forty

RCS Management's Motorola MC68040 accelerator board for the Amiga. With a clock speed of 25MHz the **Fusion-Forty** boasts incredible processing power of 18-25 MIPS and 3.5-8.0 MFLOPS. Features include:

- 4MB of 32-bit RAM, expandable to 32MB
- Hardware select switch to disable accelerator
- One year warranty
- 6-layer board with separate power and ground planes to minimize noise

Briwall Price \$2299

You realize that you can really use more memory, but you're not sure of your options. When you call Briwall, we help you choose a memory board for your system. On many boards, we even install the chips and test the board to assure that everything works when you get it. Call for details.

## MEMORY

A2000	0MB	2MB	4MB	8MB
GVP RAM8/2	n/a	\$199	\$299	\$479
Supra8	\$109	\$209	\$269	\$399
<b>A500</b>	<b>0MB</b>	<b>2MB</b>	<b>4MB</b>	<b>8MB</b>
Baseboard	\$109	\$205	\$299	n/a
Supra 500RX	\$139	\$209	\$389	\$599
501-style 512K RAM expansion as low as \$49				
<b>A3000</b>	<b>1MB</b>	<b>4MB</b>	<b>8MB</b>	
Static Column ZIP's	\$89	\$299	\$499	

Call for other memory prices!

\*DRAM prices are subject to change

Microbotics 8-up! A2000 Memory Boards  
Populate your A2000 now with the lowest prices ever!

2MB--\$179      4MB--\$249  
6MB--\$319      8MB--\$379

## MODEMS

Awesome modem speed is suddenly a wise choice. With the size of files going up and the price-performance ratio coming down, slow modems just don't make sense. Raw speed is important but don't forget about data compression. If you have questions, we'll be glad to help.

AE DataLink Express ext. MNP & SendFax	\$239
AM24 Mini Modem	\$79
Baud Bandit MNP5	\$139
Courier HST 38.4	\$629
Courier HST Dual Standard	\$939
SupraModem 2400	\$98
SupraModem 2400zi	\$119
SupraModem 2400 Plus MNP5 v.42bis	\$175
Baud Bandit Bundle	\$129

## Telecommunication Software

Atalk III Terminal Software	\$63
Baud Bandit Software	\$29
Paragon BBS	\$107
Sterling Service BBS	\$89

Call the new, improved Briwall BBS at (215) 683-7499, 300/1200/2400 baud, 24-hours, with a full catalog and ordering online!

## Courier HST

The best and fastest modem on the market. Why settle for second best when you can get a Courier!

Courier HST 38.4 v.42bis -- \$589

Courier HST Dual Standard -- \$869

## SCSI Controllers

Dataflyer	\$85
GrandSlam	\$239
GVP Series 2 HC	\$159
GVP Series 2 HC8	\$199
IVS Trumpcard	\$125
Malibu	\$139
Nexus	\$239

## A500 Drive Packages

GVP 52MB Quantum	\$599
GVP 105MB Quantum	\$809

## A500 SCSI Packages

(add any SCSI hard drive)

DataFlyer 500	\$159
IVS Trumpcard	\$189
IVS GrandSlam	\$319
Xetec Fasttrack	\$239

## IVS GrandSlam

### The Ultimate Multifunction Card

- ▲ Super Fast SCSI w/ full SCSI Share Network and Autoboot
- ▲ Room for up to 8MB of Fast RAM SIMM's
- ▲ PrinterFace Parallel Printer Port (free's up parallel port)
- ▲ Autoboot ROM's, TCUTILS, Mounting Brackets, all cables and a case for the A500 version

A2000 -- \$235 Intro Pricing A500 -- \$299

## SOFTWARE

Even choosing the software you need is difficult these days. Memory requirements, and version changes can confuse your purchase decision. We help you sort out the issues, and can help you get your software installed when your order arrives. Just call our Techline if you have any problems.

## Productivity

Best Business v3.0	\$129
Cando v1.5	\$89
MaxiPlan Plus	\$62
Office	\$169
PHASAR v4.0	\$59
PageStream 2.1	\$179
Pelican Press	\$59
PenPal	\$89
Proper Grammer	\$99
Prowrite v3.0	\$89
SuperPlan	\$329
Superbase V4.0	\$159
Wordperfect	\$159

## Utilities

Ami...Alignment	\$25
AmiBack	\$49
Arex V1.0	\$29
AC BASIC	\$129
Blitz BASIC	\$79
CrossDOS v4.0	\$26

Call for Entertainment software, Books and titles not listed!

## Music

Gold Insider MIDI	\$59
AudioMaster III	\$59
Bars & Pipes Pro	\$229
Dr T KCS V3.5	\$249
Dr T Tiger Cub	\$59
Deluxe Music	\$65
ECE MIDI External	\$49
Perfect Sound 3.0	\$65
Phantom (SMPTE)	\$229
Sound Master	\$129

## Abyss

Hot strategy/arcade game. Save the rubber bunnies from Harry Bow's nasties!

\* Rave Reviews \*

Briwall Price -- \$24

Beat the Summer Blues with our Sizzling Summer Sale

# BRIWALL

Solid Products and Solid Support

## PRINTERS

You want your ideas to look good on paper, so you need a printer that shows them off. But printer drivers, print resolution, and your software all affect which one is best for you. Tell us your needs and we'll be happy to help.

CBM 1270 InkJet	\$239
Canon PJ1080a Color Ink Jet	\$499
Citizen GX140 (24 pin)	\$319
Citizen GX145 (wide)	\$399
Citizen GX200 (9 pin)	\$189
HP DeskJet 500	\$519
HP Laser 2P	\$969
Okiidata Laser 400	\$689
Sharp JX730 Color Ink Jet	\$1699
Star RX1520 (wide, 420cps!)	\$529
Star XR1020 (420cps!)	\$399

We carry a full line of inks and ribbons

## AMIGA 1000

Dazzling performance from your Amiga 1000 is available with any of these exciting expansion products. You can add memory, storage, speed, or all three. Installation isn't always easy but we're ready to help you get your purchase up and running. Just call our TechLine.

Adspeed	\$219
Fastrak SCSI + Case	\$289
Insider II (OK)	\$199
Insider II (1.5MB)	\$289
Keyboard	\$119
Kwikstart I A1000	\$75
Kwikstart II A1000	\$88
MegaMidget Racer 25mhz	\$499
MegaMidget Racer 33mhz	\$599
Minimegs 2MB	Scall
Rejuvenator 1000w/Agnus	\$419

## EXTRAS

Expanding and enhancing your system is part of the fun of owning a computer. When you're ready to try something new, give us a call. We'll let you know what is available and help you choose the right product to enhance your system.

A500 BigFoot 150w	\$92	Extec Hard drive Case	\$85
ATOnce A500	\$279	ATOnce w/2000 adapt.	\$349
Bodega Bay	\$299	Bomac Tower A2000	\$269
CBM Speakers	\$39	CBM520 Vid Adaptor	\$45
Copy Stand	\$64	Disks-quality 3.5" 25pk	\$19
Shuffle Board	\$29	Inkum HP500 color kit	\$34
Safeskins	\$19	Switchbox a/b/c/d	\$29
Covers, Skins, Cables, Disks		call	



## GREAT PRODUCTS AT LOW PRICES!

RocGen -- External genlock for the Amiga 500/2000 with fade control	\$239
RocTec 512K RAM expander for A500	\$49
RocTec Amiga Mouse	\$39
RocTec 3.5" ultra-slim 880K external floppy drive with low power consumption	\$94
RocTec 5.25" 360/720K external drive	\$149
RocKnight -- Hardware-based anti-virus protection	\$45



## THE ICD ADVANTAGE

AdSpeed	\$219
Low-cost, low-power accelerator for your A500/1000/2000. Best overall performance of any accelerator in its price range!	
Flicker Free Video	\$309
Eliminates interface flicker on any Amiga computer when used with a VGA or multisync monitor.	
AdIDE	\$99
Put low-cost, *AT* drives on your Amiga with the smallest Amiga HD interface ever made. Available for 2.5" or 3.5" drives.	
Novia & Prima internal hard drives	
Call for prices!	

Circle 7 on Reader Service card.

## DKB Innovative solutions to specific needs

Megachip 2000 (A2000) \$239  
Install 2MB of chip RAM with this great board. Just add a 2MB Agnus.

Multistart II (A2000) \$85  
Switch between Kickstart 1.3 and 2.0 with the keyboard!

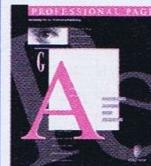
Insider II (A1000) .5MB \$239  
(1MB-\$259 1.5MB-\$289)  
Battery-backed clock and calendar, with up to 1.5MB of internal RAM.

Kwikstart II (A1000) \$88  
Install both Kickstart 1.3 and 2.0 with this handy little board.

Secure Key \$99  
Hardware password protection!

## Professional Page 2.0

Powerful, Easy to Use, Desktop Publishing!



ONLY \$195

BRIWALL's Choice for all our in-house DTP needs!

## The Personal SFC The affordable single frame solution

Software/hardware Single Frame Controller supporting all Amiga display devices and frame-accurate industrial VTR's

- ◆ Convenient tape "striping"
- ◆ Miniature b&w animated preview
- ◆ Supports Video Toaster, Firecracker DCTV, HAM-E, Colorburst
- ◆ Time-lapse and stop motion videography functions
- ◆ Easy multiple frame, loop and bi-directional segment recording
- ◆ Requires no card slot

Our Price -- \$425

## Digiview Bundle

Digiview Gold 4.0, Panasonic 1410 camera w/variable iris lens, copystand and all cables  
Complete Package \$379

## Scenery Generator

"Natural Graphics"  
New, powerful, 3D landscape animation software.  
Briwall Price -- \$62  
Requires 68020 or 68030 and 2MB

## Why buy mail order from Briwall?

1. **Technical expertise to help you make the right decision.** Buying the right product isn't easy. The broad selection makes it tough enough but new versions, compatibility problems, and functionality issues make it even tougher. We don't just take your order; we work with you to match your needs with the right products.

2. **Pretested products to help ensure that your purchase works.** Our in-house, trained technicians pre-test memory boards, hard drives and many other products before they leave our door. When you get it, it works.

3. **Technical expertise to help get your purchase up and running.** Hardware peripherals are not always easy to get running. So we won't abandon you after the sale. We offer a free technical installation service for all hardware items. If you need us, call us and we'll walk you through the set-up.

4. **Warranties and guarantee.** Buying mail order can be intimidating but we make it easy and safe. We guarantee that if your purchase doesn't run on your system, we'll work with you until you are satisfied. We also offer an extended warranty program, so call for details.

**Our personal services help you pick the right product and get it running on your system quickly.**

**1-800-638-5757**

(USA and CANADA)

Outside USA: (215) 683-5661 Tech Support (215) 683-5699  
Customer Service (215) 683-5433 FAX (215) 683-8567

- Any Visa and MasterCard accepted with NO surcharge
- Hardware shipping charges vary depending on weight and value. Call for best method and cost.
- Software shipping charges are \$5.00 per total order via UPS ground to anywhere in the continental USA
- All orders over \$300 are insured at customer's expense.

Federal Express®  
Charges for all orders  
under 20 pounds  
2nd Day Delivery \$12  
Next Day Delivery \$17

DHL  
Canadian and Overseas customers are shipped DHL.  
Rates as low as \$15 to Canada!

## BRIWALL

P.O. Box 129/58 Noble St.  
Kutztown, PA 19530  
Order lines are open 24 hours (Briwallians are in 9-8 EST)  
Store hours: Monday - Friday 9AM-8PM, Saturday 9AM-12PM

Check our delivered price!  
Our freight charges are fair!

## REVIEW

*From p. 86.*  
tion file formats (or choose the direct hardware device), and RasterLink greets you with a series of file requesters. Click on the color button to select the number of colors in your destination file, whether you want the image dithered (which you would if you're converting to a file format of fewer colors than your input file), or whether you want to save a compressed image in the case of Targa files.

The program offers a scale button for dynamically re-sizing your image. Simply type in your destination size in pixels and decide whether you want to maintain the pixel aspect ratio of the incoming image. Or, leave scaling alone if you want the same size out as in. If you have a number of images to convert from disk at one time, choose the Misc button and instruct the program to record frames to video or to beep after every converted frame.

RasterLink lets you designate the number of characters your filenames have attached to them as frame numbers, and where in each filename this number extension occurs. If you are working with batch commands, you must call up the file requester, hold down the left shift key, and then select the files in any order. RasterLink converts them after it sorts the order of the files and automatically appends an order number to the destination filename you select. Then just choose Start...that's all there is to it.

### THE ACID TEST

In my office, we have full-page scanners that work within the IBM environ-

ment. To use scans from these on the Amiga, I simply save the scans in TIFF format. Then using CrossDOS (Central Coast Software), I read that file into RasterLink, which converts the image to IFF for use with Professional Page (Gold Disk), PageStream (Soft-Logik), DeluxePaint III (Electronic Arts), or any number of other Amiga programs. No matter how big the file is, RasterLink works.

Employing a Targa board and AT&T's Tempra software, another use we've found for RasterLink is hand-painting color or 6-bit gray-scale scans made with ASDG's Sharp JX-100 scanner and ScanLab 100. These 18-bit files are much larger than the Targa board can display, but Tempra can load and save them in chunks to display on the Targa board. Of course, any time I render using Sculpt-Animate 4D (Byte-by-Byte), I do so directly to a Targa board and record directly to tape using RasterLink, the supplied ARexx scripts, and Transport Controller.

RasterLink runs flawlessly. Unlike ImageLink, it does everything promised. I have converted images to and from Macintosh PICT, TIFF, PCX, GIF, Sculpt-Animate RGB, RGBN...everything worked perfectly. The manual is easy to read and has many tips on image conversion, not to mention a complete listing of all its ARexx commands.

This noncopy-protected program is a must for anyone trying to output professional work from Sculpt-Animate 4D or working with a color or black-and-white full-page scanner. And if you have Caligari Broadcast or any Impulse 3D rendering product, I heartily rec-

ommend this software as the conversion tool needed for compatibility with other Amiga-based software/hardware solutions.

## CHROMAKEY

*Tangled up in blue.*

By Geoffrey Williams

HAVE YOU EVER wanted to wander the endless plains of Mars? Stand in the dungeons of Dungeon Master? Do the weather? Now you can, with *MicroSearch's ChromaKey* box (\$395).

ChromaKeying is just the opposite of genlocking. Instead of laying graphics over video, you can lay video over computer-generated images. This is the same process used by countless weathermen. With ChromaKey, if a subject stands in front of a blue background, anything blue becomes invisible and you will see Amiga graphics, such as the exotic locales mentioned above, in its place. Anything that is not blue (you), will appear on top of the graphics.

### IN THE SPOTLIGHT

ChromaKey plugs directly into your computer's RGB port. This means that you cannot use ChromaKey with Toaster- or DCTV-generated images. Nor does ChromaKey let you use other video sources as a background; you can only use Amiga-generated images.

In addition, ChromaKey requires an external genlock. To install, you plug

## The Experts — We Speak AMIGA World's Largest Seller of Amiga Specific Chips

<b>The Speed Shop At Memory World</b> CSA Memory <b>Nobody Cheaper!</b> 68030 20 mhz.....450.00 68030 25 mhz.....539.00 68030 33 mhz.....599.00 All of the above with MMU RAM & Math Chip Additional Unbelievable package deals.  <b>128 x 8 - 70ns Modules S-RAM For MegaMidget Racer \$41.95 ea.</b>  <b>Exclusive at Memory World Wholesale &amp; Retail</b> APO / FPO, AK & HI, FOREIGN FAX or Call for Shipping Charges	<b>TURBO ACCELERATOR HACK KIT ONLY \$40.00</b> 68000 16 mhz  <b>32K Buffer Chip for</b> KX-P1092i, KX-P1524, KX-P1124 KX-P1180, KX-P1191, KX-P1624 KX-P1695 for Panasonic Printers 3 for \$50.00 Only \$20.00 w/instructions Citizen 32K Buffer \$35.00  Memory Board for HP Laser Printer 1 meg — \$89.00 2 meg — \$139.00 4 meg — \$205.00 Call for memory boards on other brand laser printers.	<b>WOW! AMIGA 1000 Memory</b> IN 1000 by Spirit Internal 1 1/2 meg \$225.00  XRAM by Spirit External 2 meg — \$299.00 expandable to 8 meg for 500 or 1000  <b>A3000 Memory</b> 1 x 4 -80 \$25.99 ea. Static Column Zips 1 x 4 DIPS — Call 1 x 4 Page ZIPS — Call	<b>SPECIAL PURCHASE</b> 1 x 8 - 100ns SIMMS \$43.95 ea. 1 x 8 - 80ns \$46.50 ea. 1 x 8 - 70ns \$50.50 ea.  <b>GVP Accelerators In Stock</b> Accelerator Memory 4 meg — \$399.00 1 x 8 - 80ns Nibble Mode SIMMS SIMM/32 Memory — Nobody Cheaper
		<b>215-244-7930</b> <b>FAX 215-244-7932</b> <b>Add \$4.00 S/H Add \$4.00 COD</b> <b>Visa / MC / Check / COD</b>	<b>GVP</b> A2000 Memory Brd. Series II Impact w/2 meg \$169.00 w/4 meg \$263.00

Circle 93 on Reader Service card.

## REVIEWS

your video source into the ChromaKey box and then connect the ChromaKey video-out to your genlock's video-in. Then the magic happens. By moving the slider up or down, you can control the amount of live video that appears over the graphics. All the way up is all graphics; all the way down is all video. By finding the best middle ground, you can make adjustments to get the cleanest possible image. There is also a switch to disable the ChromaKey effect, so that you can use your genlock normally, and an invert switch that causes everything that is not blue to become transparent.

As is typical for lower-cost chroma-key devices, you do get some blue fringing around the live video. This can be reduced by careful adjustment of the sliders and by proper use of lighting. Using computer graphics with a lot of blue in them will make the fringing less apparent.

Lighting is a critical factor for ChromaKeying. I did use halogen lights as recommended in the manual, but I found them much too bright. Hot spots of light on the subject I was keying caused distortion in the video signal and at times scrambled the picture. The best lighting approach is to aim your lights at large pieces of white posterboard. Light bounced off the posterboard gives you a wash of diffused, less harsh illumination, and it eliminates hot spots. You also need to reflect the light at an angle to avoid casting shadows on the blue background. A separate wash of lights on this background is also necessary. Once you have the proper lighting, you will get fairly good results.

I used the Omicron Omnigen genlock in tests, as it produces very clean keying. I also tested ChromaKey with a Supergen, which also worked fine. With only the Omnigen connected, the video signal is right on the money. After adding the ChromaKey, there is some signal degradation that shows up clearly on a waveform monitor.

### ON THE BALL

Using a second Amiga, a second genlock and the old Sproing demo, I was able to have two Workbench screens with little boing balls flying all over them. On one computer using the ChromaKey box, I appeared keyed over the balls. The second computer provided a normal genlocked signal,

displaying the balls on top of the video. The final result showed me standing in a flurry of flying balls going both in front of my image and behind it. If you have a second Amiga and genlock, you can have a lot fun with layering effects.

Products like Cyberscape, Vidi-Mice (both from Tensor Productions), and Mandalla (Vivid Group) make use of A-Squared's LIVE! digitizer to let your video image interact with graphics on screen, although you can see only a single-color digitized image of yourself. I thought it would be very nice to use ChromaKey to add my full-color video image to these programs.

To proceed, I connected the incoming video signal to my internal LIVE! board, which was then connected to the ChromaKey box. I used Electronic Arts' DeluxePaint III to create and display several buttons, and Vidi-Mice to assign those button areas to specific function keys.

When my ChromaKeyed video image touched the areas those buttons were in, the computer thought that a function key was being pressed. With the hot keys from the public-domain program, MachIII, I was able to assign those function keys to play sounds, show pictures, or do just about anything I wanted (even trigger an ARexx script to interact with another program). With very little effort, I had turned an ordinary paint program into a powerful interactive multimedia program that my video image controlled. Pretty slick stuff.

### REALITY

ChromaKey is fussy. It does not like dramatic changes in the balance between live video and graphics. For example, when I walked into a scene, I got some video distortion, and when I moved further away from the camera, the image was less clean, and the slider needed to be readjusted. You need to stay in the picture and stay on pretty much the same plane. Even with the few minor limitations it possesses, it is an amazing little box, and the price cannot be beat.

*Continued on p. 98.*

# ASI

Ampex Systems, Inc.

(Not affiliated with Ampex Corp.)  
5344 JIMMY CARTER BLVD.  
NORCROSS, GA 30093



### MEMORY CHIP

256K x 4 DIPP .....	\$6.95
1 mg x 4-80 (Static for A3000).....	\$32.95
1 mg x 4-70 (Static for A3000).....	\$39.95
NEW FATTER AGNUS.....	\$109.95
Amiga Mouse .....	\$49.95
Mouse (lifetime warranty from manufacturer).....	\$69.95
Keyboard for A500 .....	\$110.00
Keyboard for A1000 .....	\$130.00
Keyboard for A2000 .....	\$120.00
Keyboard Adapter for CDTV .....	\$19.95
Power Supply A500 .....	\$109.95
Power Supply A2000 .....	\$139.95
Power Supply A3000 .....	\$199.95

### SUPRA

2 MG Expandable to 8 MG A2000. ....	\$210.00
1/2 MG w/clock for A500.....	\$69.00
50 MG Hardcard for A2000 .....	\$449.00
105 MG Hard Card for A2000 .....	\$699.00
GVP A3001/33 MHZ w/4 MG .....	\$1650.00
Amiga Vision.....	\$69.95

(Orders Only) (800) 962-4489

Fax (404) 263-7852

(Information & Prices) (404) 263-9190

Circle 96 on Reader Service card.

## TOASTER READY!

### VIDEO CLIPSE™ by GSI

Amiga™ graphic enhancements for the Video Professional

- 20 BIG super-clean bitmap fonts  
*Hi-Res - from 100 to 160 points tall!*  
*Amiga™ & Toaster formats included*
- 3 clip-art fonts (key assigned graphics)  
*special occasion/commercial/multi-use*
- IFF backgrounds & brush patterns  
*Static: marble, wood, granite, sky...*  
*Anims: starfield, countdown, globe...*

SEE YOUR LOCAL DEALER

**\$99.95** 407/626-3447

Graphically Speaking, Inc.

2574 PGA Blvd., Suite 107  
Palm Beach Gardens, FL 33410

7 DISK SET

### THE BUDDY SYSTEM™

- Learn by Using at YOUR pace!
- Hypermedia interface (\*except DPaint III)
- Realtime Visual Demonstrations
- Speech Narration & Captioning
- Insightful, Enjoyable & Effective

*Flattens The Learning Curves For:*

**DPaint III™, PageStream™,  
Imagine™, AmigaDOS™ 2.0...**

\*sold separately by their respective companies

**\$49.95** Suggested  
ea. Retail

At Your Local Amiga™ Dealer

HelpDisk, Inc. (407) 694-1756

6671 W. Indiantown Rd. Jupiter, FL 33458



Circle 95 on Reader Service card.

FOR ORDERS &  
INFORMATION IN USA  
AND CANADA CALL

1 (800) 759-6565

OUTSIDE USA & CANADA CALL (718) 692-0790

Order Hrs. Mon-Thurs: 9-7/Fri:9-5/CLOSED Sat/OPEN Sun:9:30-6(ET)

ESTABLISHED  
1967

AMIGA WORLD 9/91

MONTGOMERY GRANT™

OR WRITE TO MONTGOMERY GRANT: MAIL ORDER DEPT.  
33 34TH STREET DEPT. A, BROOKLYN, NY 11232

WE INVITE CORPORATE AND EDUCATIONAL CUSTOMERS.  
DISCOUNTS FOR QUANTITY ORDERS.

RETAIL OUTLET: PENN STATION, MAIN CONCOURSE, NYC, 10001 (Beneath Madison Square Garden)  
OPEN: Mon-Thurs 9:30-7/Fri 8:30-5/CLOSED Sat/OPEN Sun 9:30-7(ET)

FOR CUSTOMER SERVICE & ORDER STATUS CALL: (718) 692-1148

CUSTOMER SERVICE HRS: Mon-Thurs: 9-5/ Fri: 9-4 / Sun: 10-4 (ET)  
FAX #7186923372 / TELEX 422132MGRANT

NEXT DAY & SECOND DAY DELIVERY AVAILABLE ON REQUEST • NO SURCHARGE FOR CREDIT CARD ORDERS • CUSTOMER TOLL-FREE TECHNICAL SUPPORT

**CSA**  
MEGAMIDGET RACER  
(A-500, A-200)

25MHz \$599	33MHz \$679
50MHz \$849	

MEGAMIDGET ECONOMY  
(A-500, A-2000)

25MHz \$489	33MHz \$559
-------------	-------------

Math Co-processor & 32 bit memory boards available

**New!! SERIES II ACCELERATORS**

GVP A-2000 COMBO/22MHz (68030, 68882, SCSI, 1MB Expandable to 13MB).....CALL  
 GVP A-2000 COMBO/33MHz (68030, 68882, SCSI, 4MB Expandable to 16MB).....CALL  
**SCSI HARD DRIVE PKGS. AVAILABLE**  
**CALL FOR LOW PRICES!**

GVP 3050 Kit.(50MHz) w/68030, 4MB Expandable to 32MB, 68882.....\$2199

HD CONFIGURATIONS AVAILABLE - CALL

GVP A-500 HD 8+0/52Q.....\$554	GVP 8/2 MEMORY EXPANSION FOR A-2000 (2MB EXPANDABLE TO 8MB)
GVP A-500 HD 8+0/105Q.....\$799	2MB.....\$175 6MB.....\$349 4MB.....\$269 8MB.....\$429

**DKB Software**

INSIDER II	\$219	Internal Memory for A-1000
512K.....	\$249	OK exp. to 1.5MB
1MB.....	\$279	w/Onboard Clock

**MULTISTART II**  
Switch between Kickstart 2.0 & 1.3 w/the keyboard A-500 & A-2000 \$69

**KICKSTART II**  
Install Kickstart 2.0 & 1.3 ROMS in your A-1000 & switch w/the keyboard \$59

**MEGACHIP 2000**  
Get 2MB of chip Ram for the A-2000 as in the A-3000 \$219

**MEGACHIP 2000**  
& AMIGA 2000 SUPER AGNUS (Less \$50 for 1MB Fatter Agnus Chip) \$309

**SECUREKEY**  
Access security control for A-2000 & A-3000 \$99

**SEIKOSHA**

LT-20 \$289	
SL-90 PLUS \$299	
SP-2415 \$299	
SK-3005 PLUS \$399	
SP-2000 PLUS \$309	

**AMIGA 500 & AMIGA 2000 COMPATIBLE HARD DRIVE PACKAGES**

**INCLUDES CABLES & SOFTWARE**

DRIVE	DRIVE PRICE	AdSCSI 2080 A-2000 (exp. to 8MB) \$169	CALIF. ACCESS MALIBU BOARD 2000 \$119	GRAND SLAM 2000 \$229	GVP Series II HC A-2000 \$139	GVP Series II HC8/0 A-2000 \$189	RAPID ACCESS TURBO (A-2000) exp. to 8MB \$229	SUPRA WORD-SYNC A-2000 \$109	TRUMP CARD 2000 Exp. to 4MB \$109	TRUMP CARD 2000 Pro Exp. to 4MB \$149	DATA FLYER A-500 (exp. to 8MB) \$125	RAPID ACCESS TURBO 500 (A-500) exp. to 8MB \$269	TRUMP CARD A500 (exp. to 4MB) \$174	XETEC FASTTRACK A 500/A 1000 (exp. to 8MB) \$299
SEAGATE ST-157N-1 (49MB,28MS)	\$215	\$369	\$329	\$449	\$349	\$389	\$439	\$289	\$309	\$369	\$319	\$479	\$379	\$515
SEAGATE ST-1096N (80MB,3.5")	\$325	\$479	\$429	\$549	\$449	\$489	\$554	\$409	\$419	\$459	\$439	\$589	\$479	\$624
QUANTUM (52MB,Low Profile)	\$235	\$395	\$339	\$469	\$369	\$409	\$459	\$329	\$329	\$379	\$349	\$499	\$399	\$529
QUANTUM (105MB, Low Profile)	\$379	\$539	\$489	\$619	\$509	\$559	\$619	\$479	\$479	\$519	\$489	\$639	\$549	\$669
QUANTUM (170MB)	\$619	\$809	\$699	\$849	\$749	\$799	\$829	\$699	\$699	\$729	\$739	\$879	\$759	\$915
QUANTUM (210MB)	\$699	\$869	\$809	\$929	\$829	\$879	\$939	\$805	\$809	\$849	\$849	\$975	\$869	\$1009

**AMTRAC TRACKBALL**  
**\$62.95**

**VIDEO PACKAGE**

PANASONIC PV-1410 VIDEO CAMERA COMPLETE w/16mm LENS • COPYSTAND w/LIGHTS • DIGIVIEW GOLD 4.0

w/FIXED LENS \$339	w/VARIABLE LENS \$369
--------------------	-----------------------

**MICROSEARCH CHROMAKEY**  
Put Live Video in front of Computer Graphics! **\$315**

**Microway**

<b>FLICKER FIXER</b> \$229	
FLICKERFIXER (PAL).....\$269	
GENLOCK OPTION.....\$39.00	
DEB 2000.....\$89	

**BODEGA BAY**  
By CALIFORNIA ACCESS  
Expansion Console - Turn your Amiga 500 into a A-2000 Compatible  
**CALL FOR LOW PRICE!**

*New!*  
CALIFORNIA ACCESS & MALIBU BOARD BUNDLE  
**CALL**

**MICRO R&D BIGFOOT**  
150 W Power Supply for A-500. Powers 5 Hard & 5 Flopy Drives & at same time can power an XP or Trumpcard w/proper adaptor  
**MOUSE SWITCH BOX \$21.95** **\$89**

**AtOnce PC/AT EMULATOR**  
**\$249**  
A-2000 ADAPTOR FOR ATOnce AVAILABLE

*New!*  
EGA/VGA GRAPHICS SUPPORT

## AMIGA COMPATIBLE ACCESSORIES AND PERIPHERALS

AMIGA 1000 RF Adaptor.....	\$29
AMIGA 1.3 ROM (8850).....	\$39
AMIGA 1MB Fatter Agnus Chip (8372A).....	\$99
A-MAX Emulator II.....	\$129
APPLIED ENGINEERING	
1.52MB High Density Drive.....	\$199
BOMAC Tower (A-2000).....	\$239
CHINON Internal Drive A-2000.....	\$79
COLORBURST.....	\$679
COLOR SPLITTER.....	\$105
DAKOTA Sketchmaster 12 x 12.....	\$369
DAKOTA Sketchmaster 12 x 18.....	\$569
HAM E.....	\$295
HAM E Plus.....	\$379

### GENLOCKS

Minigen.....	\$184	Supergen.....	\$599
Minigen Pal.....	\$229	Supergen 200S.....	\$1339
Rocgen.....	\$249	Vidtech Videomaster.....	\$1049
Magni 4004S.....			\$1029

GOLDEN IMAGE AMIGA 500/1000/2000

    Compatible Replacement Mouse..... \$35

GOLDEN IMAGE Optical Mouse..... \$49

Master 3A-1 Disk Drive..... \$79

Golden Image Handscanner..... \$239

### AMIGA 500 EXPANSION KIT

    • MASTER 3A-1 DRIVE

    • GOLDEN IMAGE 512K w/CLOCK CALENDAR

**\$119**

Cordless Trackball & Mouse & External RAM for A-500..... CALL

New! **MICROBOTICS**

25MHz Accelerator

CALL

PANASONIC 1410 Camera..... \$179

ROCTEC ROCKNIGHT Virus Protector..... \$45

ROCTEC 3.5" External Drive..... \$89

ROCTEC 5.25" External Drive..... \$149

Sharp JX-100 Color Scanner w/Software & Cables..... \$645

SHARP JX-450..... \$4999

Stereo Speakers..... \$32

SYQUEST 44MB Removable w/Cartridge..... \$399

DIGITAL  
CREATIONS

SUPERGEN..... \$599

SUPERGEN 2000S..... \$1339

KITCHEN SYNC..... CALL

**DCTV..... \$369**

### PRINTER SPECIALS

HEWLETT PACKARD	PANASONIC
DESJET 500.....\$499.95	KXP-1180.....\$159.95
LASERJET IIP w/Toner.....\$899.95	KXP-1123.....\$234.95
LASERJET III.....\$1599	KXP-1124.....\$299.95
LASERJET IIP w/Toner.....\$1099	KXP-1624.....\$369.95
COMMODORE	KXP-1654.....\$589.00
MPS-1270 INKJET.....\$139.95	
CITIZEN	STAR
GSX-130, S250 GSX-140, S275	NX-1001, S149 NX-2420, S279
GSX-145 (wide carriage).....\$385	NX-1020, S189 NX-2420L, S299
GSX-140 PLUS.....\$329.00	CANON
200GX.....\$159.00	BUBBLEJET BJ-300.....\$499.95
COLOR OPTION KITS.....CALL	BUBBLEJET BJ-330.....\$679.95

### MONITOR SPECIALS

NEC MULTISYNC IID.....\$589	SEIKO 1440.....\$509
NEC MULTISYNC IIIDS.....\$609	SEIKO 1445.....\$579
SONY 1304.....\$649	SEIKO 1450.....\$629

Supra



**SUPRA RAM 500 \$47**

SUPRA RAM 500RX

1MB... \$128    2MB... \$189

### 500XP HARD DRIVE KITS

*Expandable to 8MB*

512K, 20MB.....\$349

512K, 52MB.....\$475

512K, 80MB.....\$559

512K, 105MB.....\$655

2MB, 20MB.....\$459

2MB, 52MB.....\$499

2MB, 52MB, (1MBx4).....\$555

2MB, 80MB.....\$639

2MB, 105MB.....\$715

2MB, 105MB (1MBx4).....\$725

### SUPRA RAM 2000

OK.....\$105

2MB.....\$169

4MB.....\$235

6MB.....\$299

8MB.....\$369

### SUPRA MODEMS

2400B External w/cable.....\$99

2400 ZI Internal.....\$114

2400 MNP.....\$145

2400 PLUS w/MNP5V, 42 bps.....\$165

2400 ZI PLUS.....\$159

9600 PLUS.....\$549

SUPRA WORDSYNC CONTROLLER.....\$99

SUPRA 3.5 EXTERNAL DRIVE.....\$98

**AMIGA 500  
AMIGA 2500  
AMIGA 3000**

**AMIGA™**

**AMIGA 2000  
AMIGA 2000 HD  
AMIGA 3000**

**COMMODORE  
CDTV  
New!  
CALL!**

**ALL MODELS  
PRICED SO LOW  
WE ARE NOT PERMITTED  
TO PRINT THEM!!**

**Specials!**

**COMMODORE  
1084  
RGB COLOR  
MONITOR  
**\$269****

**COMMODORE  
1950 MULTISCAN  
MONITOR  
**\$509****

**ICD**

### ADIDE w/SEAGATE 43MB 1.5" HARD DRIVE

For A-500.....\$349

For A-2000.....\$329

INCLUDES ALL CABLES,  
MOUNTING KIT & SOFTWARE

ADIDE 40.....\$99

ADIDE 44.....\$119

NOVIA 20i 20MB Internal  
Drive for A-500

**\$459**

NOVIA 40i.....\$699

NOVIA 60i.....\$899

**ICD AD-RAM  
540 OK  
\$96**

ICD AD-RAM 540 1MB.....\$135

ICD AD-RAM 540 2MB.....\$179

ICD AD-RAM 540 3MB.....\$219

ICD AD-RAM 540 4MB.....\$249

**New!!**

PRIMA 52i.....\$429

PRIMA 105i.....\$599

**BEETLE  
MOUSE**

**\$39**

AD-RAM 2080 Memory Expansion for A-2000.....	\$129
AdSCSI 2000.....	\$139
AdSCSI 2080 Expandable to 8MB.....	\$169

**FLICKER FREE  
VIDEO  
\$299**



# VIDEO TOASTER

CALL for our LOW, LOW PRICE!

NEOTEK VIDEO TOASTER BOX  
ALL-IN-ONE VIDEO PRODUCTION  
SYSTEM-CALL FOR LOW PRICE

DPS Personal TBC

\$729

MANY OTHER TIME BASE  
CORRECTORS AVAILABLE

TOASTER TUTORIAL  
TAPES

\$19.95



**GRANDSLAM**

500

**\$279**

**GRANDSLAM**

2000

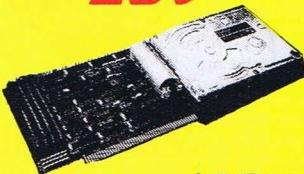
**\$229**

TRUMPCARD 500 PRO.....\$229  
TRUMPCARD 2000 PRO.....\$179  
SEE OUR HARD DRIVE PRICING FOR  
GREAT PACKAGE DEALS!

**ADVANCED**  
STORAGE SYSTEMS

NEXUS 8/0 HD  
CONTROLLER

**\$239**



FLASHBACK **\$42.95**

VISTA PRO

24 Bit Color, Trees

**\$81**

**ELECTRONIC ARTS**

DELUXE  
PAINT IV  
**\$119.95**



STAR  
FLIGHT II  
**\$34**

CENTURIAN  
DEFENDER OF  
ROME  
**\$34**

3-SIXTY MEGA  
FORTRESS-  
FLIGHT OF  
THE DOG  
**\$40.50**

PGA Tour Golf.....\$34.50  
Pro Tennis Tour II.....\$34.50  
Power Monger.....\$34.50  
Power Monger Clue Book.....\$9.95  
Secret of Monkey Island.....\$40.50  
Billy the Kid.....\$28.95  
Battle Command.....\$27.95  
AD & D Death Knights of Krynn.....\$34.50  
AD & D Secret of the Silver Blades.....\$34.00  
AD & D Eye of the Beholder.....\$40.50  
Battle Set 2.....\$20.50  
Battle Set 3.....\$20.50  
Battle Set 4.....\$23.95  
Scenari Editor.....\$26.50  
Armada 25/25.....\$34.50  
Renegade Legion-Interceptor.....\$40.50  
Zone Warrior.....\$26.95

668 ATTACK SUB.....\$37.95

A-10 TANK KILLER.....\$30.95

ABYSS.....\$25.00

ACTION STATIONS.....\$31.95

ADV.D. FLT. TRAINER 2.0.....\$29.00

AFRIKA KORPS.....\$31.50

ALTERED DESTINY.....\$37.95

AMERICAN DREAMS.....\$31.95

ARACHNOphobia.....\$27.95

ARCADE FEVER.....\$29.45

ARMADA 25/25.....\$34.50

ARMOR-GEDDON.....\$28.00

ATF-II.....\$30.50

ATOMINO.....\$31.95

AWEsome.....\$36.95

BACK TO THE FUTURE II.....\$25.50

BANDIT KINGS OF CHINA.....\$36.50

BANE OF THE  
COSMIC FORCE.....\$37.00

BARDS TALE III.....\$35.50

BAT.....\$30.50

BATMAN "THE MOVIE".....\$29.95

BATTLE CHESS.....\$30.95

BATTLE CHESS II.....\$31.95

BATTLE COMMAND.....\$27.95

BATTLE HAWKS.....\$27.95

BATTLE SET 2.....\$20.50

BATTLE SET 3.....\$20.50

BATTLE SET 4.....\$23.95

BIG BUSINESS.....\$28.95

BILLY THE KID.....\$28.95

BLACK GOLD.....\$24.00

BLITZKrieg.....\$27.95

BLOCKOUT.....\$28.95

BLOOD MONEY.....\$25.50

BRAIN BLASTER ACTION.....\$28.95

BRIDGE COMMANDER.....\$29.95

BUCK RODGERS.....\$30.50

DOOMSDAY.....\$36.50

BUDOKAN.....\$28.95

## AMIGA GAMES SOFTWARE

DUCK TALES QUEST.....\$27.95	IMMORTAL.....\$31.95	MERC'S.....\$31.95	ROMANCE OF 3 KINGDOMS.....\$42.95	TENNIS CUP.....\$24.00
DUNGEON MASTER II.....\$22.50	INDY 500.....\$32.50	METAL MUTANT.....\$31.95	SCENERIO EDITOR.....\$26.50	TERMINATOR.....\$35.95
DELUXE CENTERFOLD SQUARES.....\$19.50	INFESTATION.....\$23.95	MIG 29.....\$44.95	SCRABBLE.....\$25.50	TEST DRIVE II: THE DUEL.....\$30.95
DELUXE CENTURIAN.....\$36.95	ISHIDO.....\$34.00	MONTY PYTHON'S CIRCUS.....\$29.95	SECRET MONKEY ISLAND.....\$40.50	THEME PARK MYSTERY.....\$31.50
DELUXE CENTURIAN.....\$36.95	IT CAME FROM.....\$31.95	MOONBASE.....\$31.95	SILVER BLADES.....\$34.00	THUNDERSTRIKE.....\$21.95
DELUXE CENTURIAN.....\$36.95	THE DESERT.....\$31.95	MOONSHINE RACERS.....\$32.95	SEX OLYMPICS.....\$23.50	TIE BREAK TENNIS.....\$22.95
DELUXE CENTURIAN.....\$36.95	JACK NICKLAUS GOLF.....\$31.95	MUSCLE CARS.....\$34.50	TRAIL BY FIRE.....\$37.00	TUNNELS OF.....\$29.00
DELUXE CENTURIAN.....\$36.95	KHALAAN.....\$25.95	N.Y. WARRIORS.....\$32.00	SHADOW DANCER.....\$31.95	ARMEGEDON.....\$29.00
DELUXE CENTURIAN.....\$36.95	KILLING CLOUD.....\$31.50	NITRO.....\$32.00	SHADOW OF THE BEAST.....\$25.50	TURRICAN.....\$21.50
DELUXE CENTURIAN.....\$36.95	F-16 COMBAT PILOT.....\$31.95	OBITUUS.....\$34.00	SHADOW OF THE BEAST II.....\$34.95	TERTRIS.....\$21.50
DELUXE CENTURIAN.....\$36.95	F-19 STEALTH FIGHTER.....\$31.95	OPERATION STEALTH.....\$38.95	SPACE CITY.....\$31.50	TV SPORTS BASKETBALL.....\$1.95
DELUXE CENTURIAN.....\$36.95	F-29 RETALIATOR.....\$31.50	OVERRUN.....\$44.50	SIR FRED THE LEGEND.....\$31.95	TV SPORTS FOOTBALL.....\$1.95
DELUXE CENTURIAN.....\$36.95	FALCON.....\$30.50	PICK 'N' PILE.....\$34.50	SKY OR DIE.....\$36.50	ULTIMA IV.....\$36.50
DELUXE CENTURIAN.....\$36.95	FAST EDDIE'S POOL.....\$22.95	PICTORIAN.....\$25.50	SPACE QUEST.....\$30.95	ULTIMA V.....\$36.50
DELUXE CENTURIAN.....\$36.95	FEMME FATALE NEW VER.....\$24.00	PLANET OF LUST.....\$25.50	SPACE QUEST II.....\$30.95	UNREAL.....\$29.50
DELUXE CENTURIAN.....\$36.95	FLIGHT BRIGADE.....\$29.95	POLE POSITION.....\$31.95	SPACE QUEST III.....\$36.95	UNTOUCHABLES.....\$25.50
DELUXE CENTURIAN.....\$36.95	FLIGHT SIMULATOR II.....\$30.95	POLO OF RADIANCE.....\$31.95	SPACEDBALL.....\$27.50	VAXINE.....\$25.50
DELUXE CENTURIAN.....\$36.95	FULL METAL PLANET.....\$30.50	POPPULOUS.....\$35.50	SPELLBOUND.....\$23.50	WAR IN MIDDLE EARTH.....\$31.50
DELUXE CENTURIAN.....\$36.95	FUTURE WARS.....\$31.50	RISING SUN.....\$31.95	SPOT.....\$24.50	WAR LORDS.....\$29.00
DELUXE CENTURIAN.....\$36.95	LEISURE SUIT LARRY I.....\$25.50	LOST PATROL.....\$36.50	STAR CONTROL.....\$31.95	WARLOCK.....\$19.95
DELUXE CENTURIAN.....\$36.95	LEISURE SUIT LARRY II.....\$26.50	LUCKY LUKE.....\$36.50	STAR FLIGHT.....\$37.95	WARZONE.....\$23.50
DELUXE CENTURIAN.....\$36.95	LEMmINGS.....\$28.95	MANHUNTER.....\$30.95	STAR FLIGHT II.....\$24.00	WEB OF TERROR.....\$25.95
DELUXE CENTURIAN.....\$36.95	GERM CRAZY.....\$29.95	MANIAC MANSION.....\$15.00	STELLAR 7.....\$22.95	WEIRD DREAMS.....\$25.50
DELUXE CENTURIAN.....\$36.95	GODS.....\$34.95	POWER PINBALL.....\$23.00	STORMBALL.....\$31.95	WEILTRUS.....\$22.95
DELUXE CENTURIAN.....\$36.95	GOLD RUSH.....\$25.50	POWER ROLLER.....\$23.00	STREET HOCKEY.....\$28.95	WHERE EUROPE.....\$1.95
DELUXE CENTURIAN.....\$36.95	GRETSKY HOCKEY.....\$31.95	POWER ROLLER.....\$23.00	STREET ROD II.....\$27.95	WHIS CARME.....\$31.95
DELUXE CENTURIAN.....\$36.95	GRIDIRON W/DATA DISK.....\$19.50	POWER ROLLER.....\$23.00	STRIDER II.....\$38.95	WHIN IN THE.....\$1.95
DELUXE CENTURIAN.....\$36.95	GUNBOAT.....\$30.50	PRO FOOTBALL.....\$31.95	STRIDER ACES.....\$31.95	WHO IS CARME.....\$31.95
DELUXE CENTURIAN.....\$36.95	GUNSHIP.....\$35.50	PRO FOOTBALL.....\$31.95	STRIP POKER II.....\$25.50	WORD IS CARME.....\$30.95
DELUXE CENTURIAN.....\$36.95	HALLS OF MONTEZUMA.....\$31.95	PRO FUTBOL.....\$31.95	SUPER CARS.....\$14.95	WHO WHATI.....\$1.95
DELUXE CENTURIAN.....\$36.95	HARD DRIVIN' II.....\$31.95	PRO TENNIS TOUR II.....\$34.50	SUPER SKWEEY.....\$25.95	WHEN WHERE.....\$6.95
DELUXE CENTURIAN.....\$36.95	HARDBALL 2.....\$30.95	PUTTER.....\$23.00	SUPREMACY.....\$31.50	WING.....\$30.50
DELUXE CENTURIAN.....\$36.95	HARPOON.....\$40.50	RAILROAD TYCOON.....\$32.95	SWIV.....\$31.95	WING OF FURY.....\$25.50
DELUXE CENTURIAN.....\$36.95	HEART OF THE DRAGON.....\$29.00	MEDIEVAL WARRIORS.....\$29.00	SWORD OF ARAGON.....\$35.50	WIPE OUT.....\$25.95
DELUXE CENTURIAN.....\$36.95	HEROES QUEST II.....\$37.00	MEAN STREETS.....\$31.95	SWORD OF SODEN.....\$15.95	WOLF PACK.....\$34.00
DELUXE CENTURIAN.....\$36.95	HOVER FORCE.....\$30.50	MEGA FORTRESS-FLIGHT.....\$29.00	TEAM YANKEE.....\$38.95	WORLD CLASS SOCCER.....\$25.50
DELUXE CENTURIAN.....\$36.95	HUNT FOR RED OCTOBER.....\$19.95	OF THE OLD DOG.....\$40.50	TEENAGE MUTANT NINJA TURTLES.....\$28.95	WRATH OF THE DEMON.....\$28.95
DELUXE CENTURIAN.....\$36.95	HOVER FORCE.....\$30.50	RENEGADE LEGION-INTERCEPTOR.....\$22.95	ZONE WARRIOR.....\$26.95	

Soft Wood

PROPER GRAMMER **\$57.95**  
SOFT CLIPS **\$44.95**

Buy Any Amiga Word Processor & Proper Grammer together & save \$5 off our already discounted price.

Buy All Four Volumes of Soft Clips Clip Art for the incredible price of \$160 for All four.

NEWTEK  
DIGIPAIN II  
**\$62**

DIGIVIEW  
GOLD 4.0  
**\$119**

VIDEO TOASTER 2.0 SOFTWARE.CALL

A S D G  
ART DEPARTMENT  
PROFESSIONAL  
Image Processing's  
Common Ground! **\$129**

EPSON ES-300 C DRIVER FOR ADPRO  
Includes Stand-alone scan-to disk driver and  
ADPro module. No special board needed!  
EPSON ES-300 C Full Page  
Color Scanner/ADPro Driver & Cables.....\$1449

BIG BUSINESS  
**\$28.95**

DigiTek Software  
BIG BUSINESS  
**\$28.95**

TIE BREAK TENNIS.....\$22.95

Certified check, Bank Check Money Orders, Approved P.O.s, Visa, Mastercard, Amex, Optima, Diners Club, Carte Blanche, COD's & Wire Transfers accepted. Please call before submitting P.O.s. Non-certified checks must wait 2-4 weeks for clearance. Prices and availability subject to change without notice. Not responsible for typographic errors. Return of defective merchandise must have prior return authorization number or returns will not be accepted. Please add 5% shipping & handling. Orders over \$3000 are discounted to 3% shipping & handling. Orders over \$3000 are discounted to 2% shipping & handling. Canadian handling (minimum \$3). Orders over \$1200 are discounted to 3% shipping & handling. Orders over \$1200 are discounted to 2% shipping & handling. Minimum \$15. (Over \$1200-8%, Over \$3000-6%). All APO/FPO orders handling (minimum \$3). Orders over \$1200 are discounted to 3% shipping & handling. Orders over \$1200 are discounted to 2% shipping & handling. Minimum \$15. (Over \$1200-8%, Over \$3000-6%). All APO/FPO orders shipped first class priority air. Second day & Next day Air available at extra cost. We check for credit card theft. DCA #800233. Amiga is a registered trademark of Commodore Amiga, Inc.

*AmigaWorld* is a publication of International Data Group, the world's largest publisher of computer-related information. International Data Group publishes over 150 computer publications in 49 countries. Over 25 million people read International Data Group's publications each month. International Data Group's publications include: ARGENTINA's *Computerworld Argentina*; ASIA's *Asian Computerworld*; AUSTRALIA's *Computerworld Australia*, *PC World*, *Macworld*; AUSTRIA's *Computwelt Oesterreich*; BRAZIL's *DataNews*, *PC Mundo*; CANADA's *Computer Data*; CHILE's *Informatica, Computacion Personal*; COLUMBIA's *Computerworld Columbia*; DENMARK's *CAD/CAM WORLD*, *Computerworld Danmark*, *PC World*, *Macworld*, *Unix World*; FINLAND's *Mikro PC*, *Tietovuokko*; FRANCE's *Le Monde Informatique*, *Distributique*, *Info-PC*, *Telecoms International*; HUNGARY's *Computerworld SZT*, *Mikrovilág*; INDIA's *Computers & Communications*; ISRAEL's *People & Computers*; ITALY's *Computerworld Italia*, *PC World Italia*; JAPAN's *Computerworld Japan*, *InfoWorld*, *Publish*; KOREA's *Hi-Tech Information/Computerworld*; MEXICO's *Computerworld Mexico*, *PC Journal*; THE NETHERLANDS' *Computerworld Netherlands*, *PC World*, *AmigaWorld*; NEW ZEALAND's *Computerworld New Zealand*, *PC World New Zealand*; NIGERIA's *PC World Africa*; NORWAY's *Computerworld Norge*, *PC World Norge CAD/CAM*, *Macworld Norge*; PEOPLES REPUBLIC OF CHINA's *China Computerworld*, *China Computerworld Monthly*; POLAND's *Computers*; SPAIN's *CIM World*, *Comunicaciones World*, *Computerworld Espana*, *PC World*, *AmigaWorld*; SWEDEN's *ComputerSweden*, *Mikrodatorn*, *PC/Nyheterna*, *PC World*, *Macworld*; SWITZERLAND's *Computerworld Schweiz*; TAIWAN's *Computerworld Taiwan*, *PC World*; UNITED KINGDOM's *Graduate Computerworld*, *PC Business World*, *ICL Today*, *Lotus UK*, *Macworld U.K.*; UNITED STATES' *AmigaWorld*, *CIO*, *Computerworld*, *Digital News*, *Federal Computer Week*, *GamePro*, *inCider*, *InfoWorld*, *Network World*, *PC Games*, *PC World*, *Portable Computing*, *Publish!*, *RUN*, *SunTech Journal*; USSR's *World USSR*, *Manager*, *PC Express*, *Network*; VENEZUELA's *Computerworld Venezuela*, *Micro Computerworld*; WEST GERMANY's *Computerwoche*, *Information Management*, *PC Woche*, *PC Welt*, *AmigaWelt*, *Macwelt*.

## List of Advertisers

Reader	98	Aamiga Warehouse, <b>109</b>	21, 22	Great Valley Products, Inc., <b>4</b>
Service	59	Activa International, <b>18</b>	23, 24	Great Valley Products, Inc., <b>5</b>
Number	97	Amazing Computers Southeast, <b>109</b>	25, 26	Great Valley Products, Inc., <b>7</b>
	76	Amazing Computers Southeast, <b>111</b>	95	Help Disk, Inc., <b>91</b>
*	AmigaWorld Arcade, <b>47</b>	Tech Journal, <b>49</b>	31	ICD, Inc., <b>37</b>
		Animation Video II, <b>63</b>	75	INOVAtronics, Inc., <b>CIII</b>
		Mind's Eye Video, <b>64</b>	78	Mahoneysoft, <b>109</b>
		Tool Chest Back Issues, <b>108</b>	34	Manta, <b>85</b>
3	AmigaWorld Expo, <b>106-107</b>	3	Memory World, <b>90</b>	
96	Ampex Systems, Inc., <b>91</b>	93	Memory World, <b>109</b>	
4	ASDG, <b>52-53</b>	63	Michtron, <b>43</b>	
54	BIX, <b>86</b>	35	Montgomery Grant, <b>92-95</b>	
5	Black Belt Systems, <b>57</b>	92	Moonlighter Software, <b>76</b>	
6	Black Belt Systems, <b>80</b>	36	New Horizons Software, <b>33</b>	
7	Briwall, <b>88-89</b>	64	New Horizons Software, <b>9</b>	
77	Carina Software, <b>76</b>	38	NewTek, Inc., <b>CII</b>	
83	Centaur Software, <b>60-61</b>	37	NewTek, Inc., <b>CIV</b>	
8	Coast to Coast Technologies, <b>51</b>	62	Pysgnosis, <b>17</b>	
9	Commodore Business Machines, <b>81</b>	43	Roger Coats, <b>99</b>	
10	Computability, <b>78-79</b>	44	Safe Harbor, <b>103</b>	
12	Computer Basics, <b>100-101</b>	45	Sideline Software, <b>87</b>	
13	Creative Computers, <b>65-72</b>	90	SMC Software Publishers, <b>111</b>	
14	DevWare, Inc., <b>104-105</b>	46	SoftLogik Corp., <b>27</b>	
15	Digital Creations, <b>19</b>	89	Software Hut, <b>109</b>	
64	Digital Micronics, <b>25</b>	88	Software Hut, <b>111</b>	
61	Ditek International, <b>59</b>	47	Software Support Int'l, <b>84</b>	
60	Empire Graphics, <b>111</b>	*	Supra Corp., <b>11</b>	
100	Fairbrother & Soeprmann, <b>111</b>	*	Supra Corp., <b>13</b>	
13	Go Amigo, <b>82-83</b>	57	The Disc Co., <b>31</b>	
19	Gold Disk, Inc., <b>1</b>	50	The Software Shop, <b>97</b>	
20	Grapevine Group, The, <b>102</b>	87	TriMedia Incorporated, <b>111</b>	
29, 30	Great Valley Products, Inc., <b>2</b>	51	Utilities Unlimited, <b>77</b>	
		58	Virtual Reality Laboratory, <b>50</b>	
		86	Visionsoft, <b>109</b>	
		52	Vortex Computersysteme GmbH, <b>35</b>	

## AW Shucks!

**Item:** Our recent roundup of hard-drive interfaces ("Between a Slot and a Hard Place..." July, p. 22) contained one error. We reported that the SupraDrive with WordSync does not support the Rigid Disk Block standard, but that the company was working to provide such support. In fact, Supra's software was RDB compatible all along, and the software update, which should be out by the time you read this, gives enhanced support. Since then, Supra has announced that the new version will also improve formatting.

**Item:** Also in our July issue, we listed American Software as the distributor of Mandarin Software's AMOS (see "Making a RUN for the Roses," p. 33). We have since learned that MicroPace also distributes the product.

**Manuscripts:** Contributions in the form of manuscripts with drawings and/or photographs are welcome and will be considered for possible publication. *AmigaWorld* assumes no responsibility for loss or damage to any material. Please enclose a self-addressed, stamped envelope with each submission. Payment for the use of any unsolicited material will be made upon publication. All contributions and editorial correspondence (typed and double-spaced, please) should be directed to *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458; telephone: 603-924-0100. **Advertising Inquiries** should be directed to Advertising Offices, *AmigaWorld*, 80 Elm St., Peterborough, NH 03458; telephone: 800-441-4403. **Subscription problems or address changes:** Call 1-800-523-0643 (in CO, 1-303-447-9330) or write to *AmigaWorld*, Subscription Dept., PO Box 58804, Boulder, CO 80332-8804. **Problems with advertisers:** Send a description of the problem and your current address to: *AmigaWorld*, 80 Elm St., Peterborough, NH 03458, ATTN.: Margot L. Swanson, Customer Service Representative.

This index is provided as an additional service. The publisher does not assume liability for errors or omissions.

\* This advertiser prefers to be contacted directly.

### NOTICE TO ADVERTISERS

All advertising is subject to the approval of the Publisher and *AmigaWorld* reserves the right to refuse advertising without notice.

The advertising herein that has been typeset and/or designed by *AmigaWorld* is the property of *AmigaWorld*, and not that of the advertiser. The advertiser has purchased the right of reproduction in *AmigaWorld* only, and does not have the right to reproduce the ad in any other publication, without the expressed written consent of *AmigaWorld*.

Advertisers and/or their agencies assume the responsibility for the condition of the contents of the advertising printed herein and agree to indemnify the Publisher of *AmigaWorld* for any claims and/or expenses incurred therefrom.

*AmigaWorld* is not responsible for changes to artwork after the given advertising deadlines, nor assumes responsibility for mistakes, misprints, or typographical errors, and will not issue credits of any kind for such errors.

*AmigaWorld* advises advertisers that statements regarding shipping and handling charges, warranties and/or money-back guarantees should be included within all forms of advertising in *AmigaWorld*.

The opinions expressed in the articles and advertising appearing herein are those of the authors and/or advertisers and are not necessarily those of *AmigaWorld*.

## FYI

If you have any questions or concerns about advertisers in *AmigaWorld*, please contact: Margot L. Swanson, Customer Service Representative, *AmigaWorld Magazine*, 80 Elm St., Peterborough, NH 03458. As a service to its readers, *AmigaWorld* will periodically publish the names of companies who are having difficulties meeting their customer obligations or who have gone out of business. Through our customer service representative, *AmigaWorld* assists readers with problems they may have with advertisers. However, *AmigaWorld* does not assume any liability for advertiser's claims. Readers are advised to contact *AmigaWorld* before dealing with these companies: **Micro Computer Services**; **Computer Mart, C Ltd.**, and **Ingenuity, Inc.** are out of business.



# The Software Shop, Inc.

Orders Only Call 1-800-752-0050

"Give us the chance to meet or beat any advertised price."

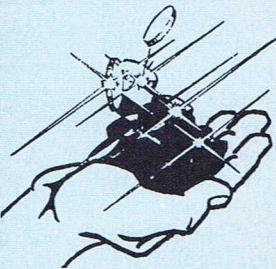
**WE ACCEPT  
MASTERCARD  
& VISA.**

Amiga 1000 \$259.00

Amiga 2000 HDrives	Quantum 52LPS	Quantum 105LPS	For Software	Quantum 205MEG	Syquest W/CART.	AMIGA 2000	Memory Expansion			
							2MG	4MG	6MG	8MG
Harddrive Prices	\$265	\$399	and	\$729	\$569	8UP A2000	\$179	\$249	\$319	\$379
GVP A2000-HC/OSRS II	\$399	\$559	Hardware	\$899	\$739	ADD SCSI 2080	\$249	\$299	\$419	\$499
GVP A2000-HC8/OSRS II	\$439	\$559	Not	\$929	\$783	ADRAM A2080	\$169	\$225	\$299	\$399
Hardframe 2000	\$439	\$559	Listed,	\$899	\$729	GVP A2000-HC8SRSII	\$299	\$389	\$489	\$579
Supra Wordsync	\$389	\$559	CALL	\$899	\$682	RAMWORKS 2000	\$189	\$239	\$309	\$349
AddSCSI 2080-8+0	\$449	\$559		\$929	\$748	SUPRARAM A2000	\$189	\$239	\$299	\$389
<b>A500 SCSI HDrives</b>	<b>Q52LPS</b>	<b>Q105LPS</b>	<b>A500 IDE Internal Harddrives</b>		<b>Amiga 500 Memory</b>	<b>1MG</b>	<b>2MG</b>	<b>3MG</b>	<b>4MG</b>	
GVP A500 HD8/0 SRS II	\$599	\$799	Teac 40 MG	Q52LPSA	Q105LPSA	Base Board	\$145	\$179	\$225	\$259
Supra 500XP-512K	\$579	\$799	\$329	\$399	\$599	AdRAM 540	\$145	\$179	\$225	\$259

Authorized Amiga Dealer and Service Center

Accelerators	
GVP Combo 22mhz w/1MB	\$889
GVP3033 33mhz w/4MB	\$1599
GVP3050 50mhz w/4MB	\$2399
MegaMidget Racer 25mhz	\$499
MegaMidget Racer 33mhz	\$599
AdSpeed	\$229
Memory Chips	
256K Each	\$2
256x4 Each	\$6
1x1 Each	\$6
1x4 Zip Each	\$30
1x8 Sim Mod	\$49
256x4 Zip	\$6



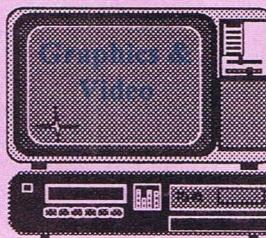
Save on your Amiga  
Software & Hardware

## Education

Aesop's fables	\$32
All about America	\$35
Animal kingdom	\$32
Decimal dungeon	\$32
Designasaurus	\$32
Fraction action	\$32
Kinderama	\$32
Math wizard	\$35
Mavis beacon typing	\$33
Read-a-rama	\$32
Read & rhyme	\$32
Tales from Arabia	\$32
WhereinEurope.C.Sidiego	\$35
WhereintheU.S.	\$35
WhereinWorld.C.S.	\$32
Wordmaster	\$32
World Tour Canada	\$30
Worldtour Mid East	\$29

## FONTS

cg fonts	\$129
Inter font	\$76
Kara fonts color	\$50
Kara fonts Headline 2	\$48
Kara fonts subheads	\$48
Kara Anim font 1	\$35
Kara Anim Font 2	\$35
Kara Star Field Font	\$35
Type Fonts	\$39



Digi View Gold 4.0	\$131
Imagine	\$229
Modeler 3D	\$64
Movie Clips	\$29
Movie Setter	\$65
Page Flipper FX	\$95
Pagerender 3D	\$105
Pro Video Post	\$220
Scala	\$239
Scene Generator	\$29
ShowMaker	Call
Spectrocolor	Call
Title Page	\$129
TV Show 2.0	\$64
The Director 2.0	\$69
TV Text Prof.	\$111
Video Effects 3D	\$121
Videoscape 3D	\$120
Video Titler 3D	\$99
Vista Pro	\$95
Zoetrope	\$91

Ece Midi 500/2000	\$52
Flicker Free Video	\$309
Future snd. A500/A2000	\$92
Internal 3.5drive A2000	\$89
Migraph Scanner	\$349
Mini Gee	\$210
Perfect sound V.3.0	\$75
Scanlock	\$789
Sharp JX 100 Scanner	\$789
Super Gen	\$695
Supergen 2000S	Call
Supra 2400bd internal	\$149
Supra modem 2400bd	\$119
USRobotics9600bd.HST	\$669
Video Toaster	\$1499

## Languages Utilities

A/C basic	\$129
A/C fortran	\$195
Arexx	\$33
Assem pro	\$65
Benchmark c lib	\$62
Bnchmark SrcLevDebug	\$62
Benchmark iff library	\$62
Benchmark C library	\$62
Benchmark modula 2	\$128
Benchmark simplified	\$62
Cross Dos 4.0	\$29
Cygnus Professional	\$65
Data Tax	\$52
Disk master 1.4	\$33
Disk mechanic	\$59
Dos 2 dos	\$35
Lattice Dev. System 5.1	\$199
Mac 2 DOS	\$99
Power Windows v.2.5	\$58
Project D 2.0	\$39
Quarterback 4.1	\$45
Quarterback Tools	\$55
Workbench Mgmt. 2.0	\$31

## Monitors

NBC 3D multisync	\$699
Sieki Cm1440 Monitor	\$599
Zenith14'FlatCRT	\$625
Printers	
Citizen 200GX	\$210
Citizen GSX140 Color	\$399
Star nx rainbow	\$225

## Sound & Music

4-op deluxe	\$112
Audio Master 3	\$65
Audio master II	\$67

## TERMS & POLICY: TO ORDER BY FAX CALL:

**1-508-799-9354**

FOR PRODUCTS NOT

LISTED CALL:

**1-508-756-6452**

PLEASE SEND ALL CORRESPONDENCE TO:  
THE SOFTWARE SHOP, INC.  
22 FRONT ST. P.O. BOX 22  
WORCESTER, MA 01614

PRICES TERMS, AVAILABILITY  
ARE SUBJECT TO CHANGE  
WITHOUT NOTICE.

### POLICIES:

- 1-We accept Vis and Mastercard
- 2-Minimum Shipping \$6.00
- 3-COD charges \$5.50
- 4-Hardware Shipping 5%.
- 6-International Shipping 15%
- 7-APO & FPO 10%
- 8-2nd. day air Available
- 9-Next day air Available
- 10>Returns are subject to 15% restocking fee.
- 11-Product must have RMA# to be returned.

CALL FOR ENTERTAINMENT  
SOFTWARE.

Circle 50 on Reader Service card.

From p.91.

## HYPERBOOK

*Takes composition to a new level.*

By Bill Frazier

**DEFINING GOLD DISK's** Hyperbook is somewhat of a challenge. Is it a database, a word processor, or a presentation program? Hyperbook (\$99.95), a free-form applications generator, incorporates all these functions—and more.

What you find when you open the Hyperbook's box is two noncopy-protected disks, a documentation manual, and a book of suggested applications. The indexed documentation is well organized and easy to understand, and it includes a three-part tutorial.

### A LEG UP

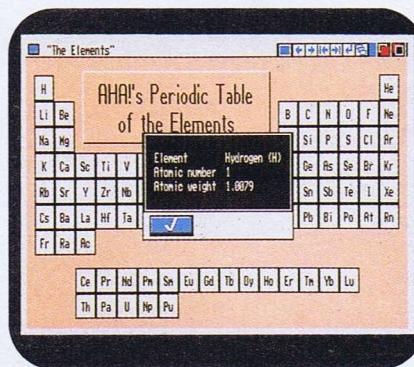
To load Hyperbook, click on the program icon or activate it from the CLI. It has all the typically familiar pull-down menus, with some keyboard shortcuts, and even makes use of the Help key, a rarity in Amiga programs.

There are five types of objects you may place on your screen: notes, buttons, drawings, pictures, and lists. You can assign each object one of seven different actions, or none at all. When you click on an object, Hyperbook can display pictures or text files, proceed to another page, hide or show objects, execute DOS commands, or execute AReXX scripts. In a nutshell, what it can do for you is up to you and your imagination.

With Hyperbook's Note Editor, you can add text to your application. While the Note Editor is not a complete word processor, I found it to be versatile and quite adequate. You can select font type, size, color, style, justification, and margins with Text Control. With Spacing Control, you can adjust baselines for super- or subscript fonts. This function also offers control over the spacing between lines of text and between letters. Then you can select background, border, and drop-shadow colors to highlight your messages.

### KEEP IN TOUCH

To make your presentations more interesting and easier to use, you can create on-screen buttons that launch



**Setting up an interactive screen is easy.**

specific actions. Just as in adding notes, Hyperbook provides editing tools to help you fashion buttons.

The Drawing Editor provides a means of designing your own drawings directly on the Hyperbook page. This feature offers a variety of brush sizes and colors, options to color and fill shapes, and the ability to draw most standard objects such as circles, ellipses, squares, rectangles, lines, and polygons. If you are not happy with your artwork at first, you can resize, rearrange, and delete until you are. The drawing editor will not replace your favorite paint program, but it does make it easy to add simple geometric shapes to your presentations.

Adding IFF pictures is probably the most challenging task in Hyperbook. The program accepts clips from pictures created in hi-res, low-res, Interlace, and even HAM mode, but the manual advises against using HAM pictures as clip sources because Hyperbook does not technically support HAM mode. In practice, it was difficult to make all but the simplest clips display properly.

To get good results, first change your Hyperbook-page color map to closely match the palette of the picture you wish to display. Since only one color map is available on a page, it becomes difficult or impossible to show multiple clips on a single page unless their colors match. I did achieve good results with all IFF resolutions whenever I used Hyperbook's Show Picture function.

Finally, Hyperbook allows you to add lines of text, or lists, to your applications. Each line represents an individual item within the list. You can assign a specific action to every item you add. For example, if you create a list to act as a mini-database within an application, the program will rearrange the contents just like a database when you click on the sort gadget. If you wish, you can create various sort keys with

AReXX to define specific tasks such as rearranging a list of names in ascending alphabetical order, for example.

### GET WITH THE PROGRAM

For the programmer, Hyperbook's AReXX support and the Hyperbook Macro Language (HML) are available. HML adds about 130 Hyperbook functions to AReXX for use within the program. The manual covers HML functions, and the samples disk includes a sample hyperbook called AREXX.hb, as well as several well-commented HML macros and programs. These sample macros are valuable training aids in understanding and using HML within a hyperbook application.

Hyperbook is a solid, well-behaved multitasker. During tests, it ran simultaneously with a paint program, word processor, text editor, and two other tasks launched from my startup sequence. While I never saw the guru during testing, there were some error messages missing. If your application tries to read a text file or show a picture file from a disk no longer in a drive, the Hyperbook screen will flash, but does not display an error message such as "File Not Found."

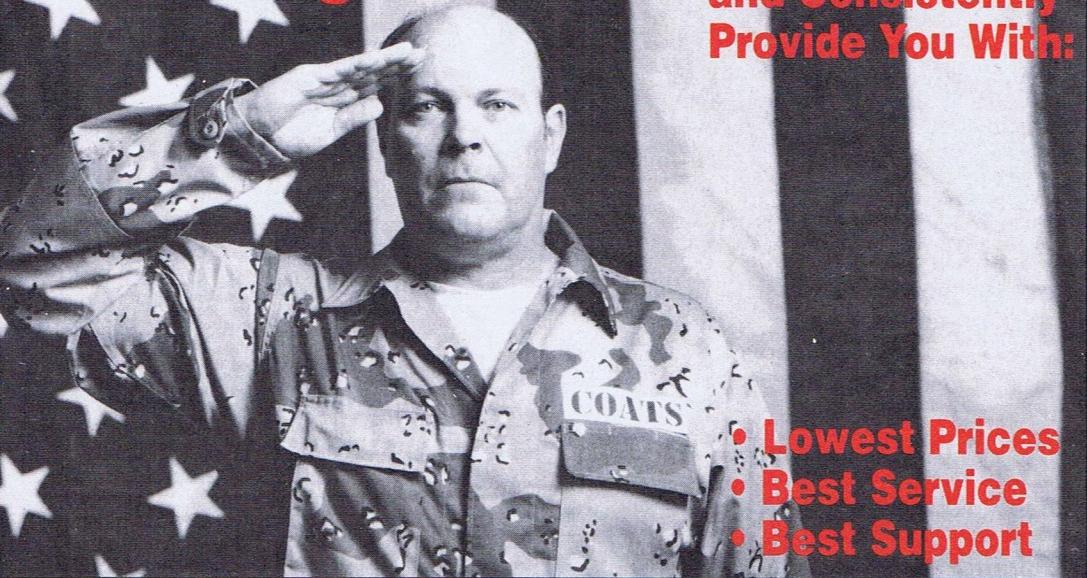
The program offers two print options in the menu: print page and print text. The print-page option initiates a graphic screen dump of the currently displayed page. The print-text option allows you to print the text of all notes, buttons and lists, either on the current page or on all pages within your application. Neither option allows you to print all the text in a specific list object, such as the data in an address book. You could write an AReXX to get around the problem, but the task may be beyond the capabilities of the casual user.

The minimum requirements for Hyperbook are 1MB of RAM and a disk drive. The program runs easily with the 1MB of RAM, but extensive multitasking is then difficult, and trying to run it with just one drive would quickly become a disk-swapping nightmare. I would recommend two disk drives at a minimum. A hard drive is desirable to gain full benefit from the program, with instant access to AReXX macro libraries, as well as picture and clip libraries.

Hyperbook is the type of program that a novice with a 1MB Amiga and two disk drives can immediately use, yet it has sufficient versatility and complexity to interest the advanced Amiga programmer as well. ■

# OPERATION AMIGASTORM

## Our Pledge:



**AIR**  
A2010 Int. 3.5 Drive (Amiga 2000) 91  
A3010 Int. 3.5 Drive (Amiga 3000) 103  
A5010 Int. 3.5 Drive (Amiga 500) 81

**ASDG**  
Art Department Professional 129

**AVATAR**  
Heart of the Dragon 20

**CALIFORNIA ACCESS**  
Bodega Bay 339

CA-880 External 3.5" Drive 94

**CSA**

ECONO M M R, 25 MHz 497

ECONO M M R, 35 MHz 597

M M R 25 MHz (500/2000) 689

M M R 33 MHz (500/2000) 839

Midget Racer 68020/7 MHz (500/2000) 270

Math Co-Processor for Midget Racer 89

**DIGITAL CREATIONS**  
Supergen 2000 Internal 1339

**DIGITAL PROCESSING**

Personal TBC (Time Base Corrector) 799

**ECE**

1000 MIDI 49

500 MIDI + 49

**ELECTRONIC ART**

Deluxe Paint III 83

### EXPANSION SYSTEMS

2000 DataFlyer w/SCSI 89  
500 BaseBoard w/Clock @ 1MB 157  
500 DataFlyer w/SCSI + Chassis 155

### GREAT VALLEY PRODUCTS

3050 Accelerator (50 MHz/4 MB) 2349  
Combo (22 MHz/1 MB) 899  
Combo (33 MHz/4 MB) 1599  
HC Series II + RAM w/No HD 199  
HC Series II w/No HD 155  
Impact 500 Series II w/52MB HD 629

### GOLD DISK

Home Office Advantage 109  
Outline Fonts-35 CG Hi Res Fonts 124  
Professional Draw 2.0 109  
Professional Page 2.0 217



### OPERATION AMIGASTORM

#### Strategy:

To beat the best advertised price in this magazine or Ragin' Roger will send you a check for \$5 U.S.

### GOLDEN IMAGE

512 RAM Card w/Clock & Cal 49  
G.I. Hand Scanner 239  
Opto-Mechanical Mouse 35

### ICD

AdRAM 2080 8/2MB 205  
AdRAM 540 w/Clock @ 1MB 157  
AdSCSI 2080 8/2MB w/SCSI 273  
AdSpeed - All Amigas 233  
Novia 40i HD 710  
Prima 105i 500 HD 723

### IMPULSE

Imagine v1.1 195

### IVS

Meta 4, 2 MB 279  
Trumpcard Professional (2000) 209

### MAGNAVOX

RGB Color Monitor 294

### MEGA MICRO

1 MB DRAM Chips, 100 ns (set of 8) 64  
1 MB SIMMs 65  
256K x 4 DRAM Chips (set of 2) 19

### NEWTEK

CS-1 Copy Stand & Lights 55  
DigiView Gold 4.0 119  
Panasonic 1410 Camera-Variable Lens 209  
Video Bundle 358

### NEWTEK

Video Toaster (2000)

1399

### OXXI

Atalk 3 (Communications)

59

### RICKETTS INC.

XT 1000 Amiga 2000 Adaptor

8

XT 1000 (IBM KeyBds on Amiga)

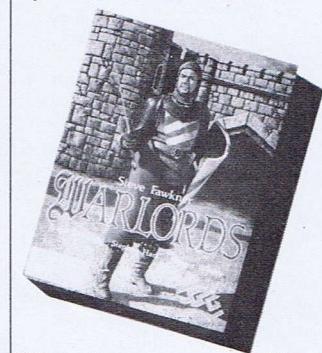
35

### SOFT LOGIC

PageStream 2.1

167

by STRATEGIC STUDIES



**Warlords** \$30

A huge, eight player strategy game of empires, castles, armies, heroes, monsters and dragons. Only one empire will prevail in a ruthless struggle for supreme power.

### SUNRISE

Color Splitter 109

### SUPRA CORP.

1000 SCSI Interface w/Clock 179  
2000 SupraDrive 40 MB 364

2000 SupraRAM 2 MB 209  
2000 WordSync SCSI Interface 109

2400 Baud External Modem 99  
2400 Plus w/MNP5 & v42bis 174

500XP 105 MB w/512K 690  
500XP 52 MB w/512K 499

9600 Baud w/MNP5 & v.42bis 519

### US ROBOTICS

Courier HST 9600E Modem

619

### VORTEX

ATOnce (IBM AT Emulator) 279

### WORDPERFECT

WordPerfect v4.1 159

**1,000's of products available!  
Fill out the Reader Service Card for a FREE Catalog**

# Roger Roats

P.O. Box 171466  
San Diego, CA 92197

Circle 43 on Reader Service card.

#### HOW TO ORDER:

**Orders only: 1-800-438-2883**

**FAX: 1-619-274-2440**

15% (\$15/min. restocking fee on refunded items only)

**Price quotes & technical support:**

**1-619-274-1253**

**8am-5pm PST Monday-Friday**

**Committed to Value Since 1985**



#### OUR FINE PRINT:

\*Certain limitations apply to \$5 offer:

1. Advertised price must be published in this magazine.

2. We reserve the right to question misprints.

3. Limited to items we carry & stock on hand, excluding games.

4. Management reserves the right to make final decision.

We accept the following methods of payment:

• School Purchase Order • VISA & MasterCard

• Bank Wires • Certified Checks • Money Orders • NO C.O.D.s

• Sorry, No Software Refunds

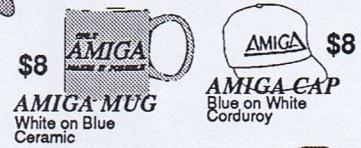
• Not responsible for product compatibility

• Sorry, no shipping, handling, or insurance refunds

• FOB San Diego • We really appreciate your business!



To Order, Call 1-800-262-0533  
**Amiga SHOW-OFFS**



Earn AMIGAMAN CASH  
 for Amiga Show-Offs.  
 \$1 for every hundred dollars bought,  
 redeem for AMIGA SHOW-OFFS

### Books

Amiga for Beginners	\$13	Adv. Military Systems	\$27
Amiga Dos Qik Ref. Guide	\$8	All Dogs Go to Heaven	\$33
Amiga Dos. Inside & Out	\$19	Barney Bear School	\$26
Amiga Basic Inside & Out	\$19	Case of Cautious Condor	\$33
Machine Language	\$15	CD Caddy	\$15
Graphics Inside & Out	\$28	Classic Board Games	\$33
Amiga C for Beginners	\$15		
Amiga C for Advanced	\$26		
3DGraphic Prog. in BASIC	\$15		
Desktop Video Power	\$23		
Best of Amiga Tricks & Tips	\$23		
Making Music on Amiga	\$26		
Amiga Printers Inside Out	\$26		
Using Axxex	\$26		

### CDTV Titles

Fred Fish Collection	\$48
All Dogs Go to Heaven	\$33
Barney Bear School	\$26
Case of Cautious Condor	\$33
CD Caddy	\$15
Classic Board Games	\$33
Lemmings	\$33
My Paint	\$33
New Basics Cookbook	\$44
Psycho Killer	\$37
Team Yankee	\$33
Time Table Business	\$44
World Vista	\$64
Women in Motion	\$37
Wrath of the Demon	\$33
Call For New Titles	



### The ICD Advantage

AdSCSI2000	\$129
Hard drive interface with un-matched speed and flexibility	
AdSCSI2080	\$189
Hard drive interface with up to 8 megs of FAST RAM	
AdSpeed	\$216
Best Overall performance of any accelerator in its price range	
Flicker Free Video	\$309
Eliminates interlace flicker for any Amiga Computer	
AdRAM 540	\$109
Add up to 4 meg of RAM internally in your Amiga 500	
AdRAM 2080	\$123
8meg internally in your 2000/2500	

### New From ICD

AdIDE	\$123
Smallest Amiga hard drive interface made for IDE(AT) drives	
IDE44	\$109
for your 2.5 inch hard drives	
IDE40	\$109
for your 3.5 inch hard drives	
Novia 201	\$499
The Smallest hard drive and interface in the world for your Amiga 500. Fits internally	
Novia 601	\$999
Now you can have the Novia with a 60 meg 2.5 inch hard drive.	
Prima 521	\$599
Now mount a 3.5 inch IDE drive internally in your Amiga 500, 1000, or 2000	
Prima 1051	\$799
105megs internally in your 500, 1000 or 2000	
Shuffle Board	\$34
Reroutes d0: to the external floppy connector. Boot from external floppy	

Western Pennsylvania's source for



Authorized Amiga dealer for

**A500**

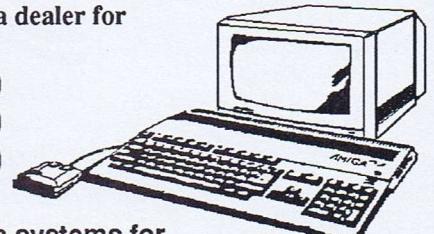
**A2000**

**A2500**

**A3000**

**CDTV**

Computers  
Accessories



Complete Amiga systems for  
 Home, Education, Video, & Graphic Arts  
 Complete Video Toaster Systems available

Stop in or call for an appointment. On site demonstrations, installation and training available. Leasing and on-site service. Computer sales are limited to walk-in sales and professional installations within our market area. No mail orders please

**Computer  
Basics Inc.**

(412) 962-0533

No One Knows Amiga Better  
 Authorized Commodore Dealer  
 Since 1980

1490 N. Hermitage Rd., Hermitage, PA

Circle 12 on Reader Service card.

## Manufacturers'/Distributors' Addresses

**Accolade**  
 550 S. Winchester Blvd.  
 Suite 200  
 San Jose, CA 95128  
 408/985-1700

**Active Circuits**  
 1985 Highway 34, Suite A-4  
 Wall, NJ 07719  
 908/974-1616

**Adobe Systems**  
 PO Box 7900  
 Mountain View, CA 94039  
 800/833-6687

**Advanced Storage Systems**  
 A division of Preferred Technologies  
 14540 E. Beltwood Pkwy.  
 Dallas, TX 75244  
 214/702-9191  
 800/878-0010

**Allied Studios**  
 482 Hayes St.  
 San Francisco, CA 94102  
 415/863-1781

**Amiga Video-Graphics Guild**  
 1649 Arcane St.  
 Simi Valley, CA 93065  
 805/584-0863

**Apple Computer**  
 700 Laurelwood Rd.  
 Santa Clara, CA 95054  
 408/996-1010  
 408/562-3842

**ASDG**  
 925 Stewart St.  
 Madison, WI 53713  
 608/273-6585

**Black Belt Systems**  
 398 Johnson Rd.  
 Glasgow, MT 59230  
 406/367-5513  
 800/TK-AMIGA

**Blue Ribbon SoundWorks**  
 1293 Briardale N.E.  
 Atlanta, GA 30306  
 404/377-1514

**Blue Shadow Productions**  
 36 Mud St.  
 Hamilton, Ont.  
 Canada L8J 1R5  
 416/574-3517

**Broderbund Software**  
 17 Paul Drive  
 San Rafael, CA 94903  
 415/492-3200  
 800/533-6263

**California Access**  
 130A Knowles Dr.  
 Los Gatos, CA 95030  
 408/378-0340

**Capstone Entertainment**  
 14160 S.W. 139th Court  
 Miami, FL 33186

**CDTV Publishing**  
 See Commodore Business Machines

**Centaur Software**  
 PO Box 4400  
 Redondo Beach, CA 90278  
 213/542-2226

**Central Coast Software**  
 A Division of New Horizons  
 P.O. Box 164287  
 Austin, TX 78716  
 512/328-6650

**Classic Concepts**  
 PO Box 786  
 Bellingham, WA 98227  
 206/733-8342

**Commodore Business Machines**  
 1200 Wilson Dr.  
 West Chester, PA 19380  
 215/431-9100  
 215/436-4200

**Computer Imagery**  
 49 Walnut Ave.  
 Shelton, CT 06484

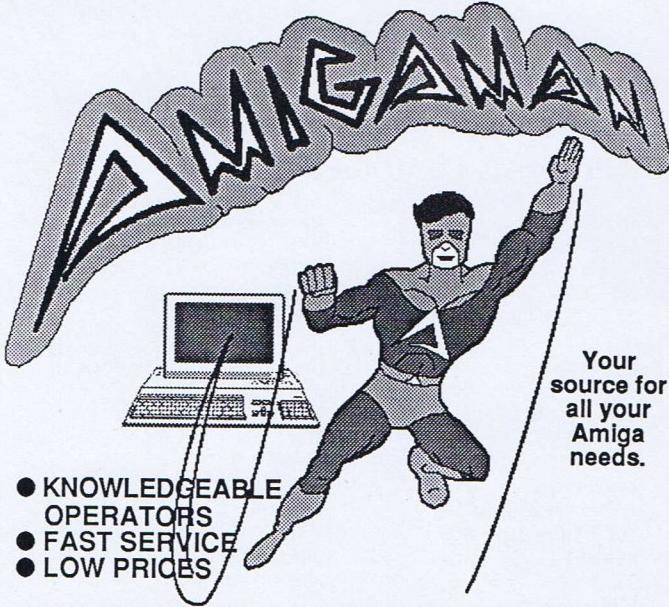
**Consultron**  
 11280 Parkview  
 Plymouth, MI 48170  
 313/459-7271

**CSA**  
 7564 Trade St.  
 San Diego, CA 92121  
 619/566-3911

**Desktop Utilities**  
 PO Box 3053  
 Manuka, ACT 2603  
 Australia  
 61-6-2395568

**DevWare**  
 12528 Kirkham Court  
 Suite 11-A17  
 Poway, CA 92064  
 619/679-2825

**Digital Creations**  
 2865 Sunrise Blvd.  
 Suite 103  
 Rancho Cordova, CA 95742  
 916/344-4825 ▶



- KNOWLEDGEABLE OPERATORS
- FAST SERVICE
- LOW PRICES

Your source for all your Amiga needs.

# DISTANT SUNS v4.0

1MB Required \$57  
Distant Suns 3.0 512K req. \$35

## Education

Adventures in Math	\$25
Algebra	\$31
Barney Bear (ea)	\$22
Carmen Sandiego (ea)	\$31
Dinosaur Discovery Kit	\$25
Distant Suns 4.0	\$59
Distant Suns 3.0	\$35
First Letters and Words	\$25
Katie's Farm	\$25
Kid Talk	\$25
Math Talk	\$25
Math Talk Fractions	\$25
Math Blaster Plus	\$31
McGee	\$25
McGee Fun Fair	\$25
Puzzle Storybook	\$25
Rhyming Notebook	\$25
Speller Bee	\$25
Talking Animator	\$41
Talking Coloring Book	\$19

## Entertainment

A-10 Tank Killer	\$31
Armour-Gedden	\$28
Atolmino	\$31
Awesome	\$37
Bane of Cosmic Forge	\$37
Centurion	\$34
Death Knight of Krynn	\$37
Dragon's Lair 2 (Time Warp)	\$37
Drakken	\$37
Dungeon Master 2	\$25
Elvira: Mistress of the Dark	\$37
Eve of the Beholder	\$39
F15 Strike Eagle 2	\$37
Falcon	\$31
Falcon Missions 1 or 2	\$19
Flight of the Intruder	\$37
Full Metal Planet	\$31
Gold of the Aztecs	\$31
Hovorce	\$31
Immortal	\$34
Jack Nicklaus Unlimited	\$37
Killing Game Show	\$28
Kings County	\$34
Lemmings	\$37
M1 Tank Platoon	\$31
Mean Streets	\$31
Monopoly	\$37
Overdrive	\$31
Overlord	\$31
PGA Golf	\$34
Power Monger	\$34
Quest for Glory 2	\$37

## HARDWARE

### Expansion Systems **BASEBOARD**

Expand your Amiga 500 RAM	
512K to 4MB	
0K \$109	
512K \$134	
1MB \$159	
2MB \$209	

### DataFlyer 500

Budget Hard drive solution for your A500  
Controller only **\$149**  
W/52MB Quantum **\$398**

### DataFlyer 2000

Budget hard drive solution for your A2000  
Controller only **\$85**  
W/52 MB Quantum HD **\$334**

### NEW GVP ALL-IN-ONE ACCELERATORS

22MHz/1 MB \$69  
22MHz/1 MB/520 \$1138

22MHz/1 MB/105Q \$1318  
33MHz/4 MB \$1599  
33MHz/4 MB/520 \$1868  
33MHz/4 MB/105Q \$2048  
50MHz/4 MB \$2289

### Memory-A500

RC500 512K RAM exp.	\$49
RC1000 2MB RAM ext.	\$199
SupraRam500	\$59
Supra Ram 500 RX (1-2MB)	\$139
Supra Ram 500 RX (2-8MB)	\$129
ADRAM 540	\$109

### Floppy Drives

AE 1.52MB external	\$199
AIR Drive 880K external	\$199
Master 3A-1 external	\$82
Master 3A-1D W/Display	\$99
Rockwell Ultra Slim external	\$95
A2000 Internal drive	\$89

### Digitizers & Scanners

AutoJord	\$48
Color Splitter	\$109
Copy Slant	\$62
DCTV	\$389
DigiDroid	\$67
FrameBuffer w/capture	\$599
Hand Scanner w/Touchup	\$265
JX100 Scanner w/Software	\$699
JX300 Scanner w/Software	\$2999
Panasonic 1410 Video Camera	\$179

### Drawing Tablets

Sketchmaster 12x12	\$429
Sketchmaster 12x18	\$599
Summa Graphics II Tablet	\$499

### Midis

ECE Midi	\$49
Midi Gold 500	\$56
Midi Gold Insider	\$65
Midi Connector w/ cables	\$59
Phantom SMPTE MIDI	\$229
Midi cable 6ft	\$8

### Audio Digitizers

Audio Engineer	\$229
Audiomaster 3	\$62
Audition 4	\$64
Perfect Sound 500 3.1	\$69
SoundMaster	\$139

### Hardware (misc)

AT-Once	\$279
AT-Once A2000 adapter	\$99
Double Talk Net work	Call
Flicker Fixer	\$249
Flicker Fixer's DEB 2000	\$99
At Flicker Free Video	\$309
Star Printers	Call
Panasonic Printers	Call

### Video

Chroma Key	\$329
MinGen	\$209
SuperGen	\$649
SuperGen 2000S	\$1449
Video Blender	Call
Video Master	\$1029
Video Toaster	\$1399
Personal TBC	\$799

### CD-ROM ext. Drive

A500 / A2000 w/H.D.  
Runs CDTV Discs **\$695**

### Amiga 500 Monitor Stand

**\$29**

### Complete Digi-View System

**\$399**

Includes:  
Digi-View

4.0 plus:  
Copy,

Stand,

Panasonic

1410 camera,

AutoDroid,

video switch and all cables.

The only complete

Automatic system offered

**\$399**

w/Malibu **\$399**

Disk drive mounting kit **\$15**

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground

UPS Red add \$10.00 to UPS Ground

UPS Blue add \$5.00 to UPS Ground



# THE GRAPEVINE GROUP, INC.

COMPARE OUR PRICES



## AMIGA UPGRADE CHIPS

Fatter Agnus (8372A) ....See below
8362 Denise Half Bright .....26.50
8373 New Super Denise .....*54.50
8364 Paula chip .....26.50
5719 Gary chip .....14.50
8520A CIA chip .....15.50
1.3 ROM Kickstart .....24.95
2.0 ROM Kickstart .....call
A500 Keyboard .....109.50
A2000 Keyboard .....114.95

## DISK PRODUCTS

Rockwell Agnus chip puller .....8.95
Kwikstart (A1000 1.3 ROM)....58.00
Kwikstart II (1.3 or 2.0)
Switchable in your A1000....78.00

## AMIGA POWER SUPPLIES

A500 45 watt (heavy duty) .....67.50
A1000 Replacement P/S.....127.00
A2000 Replacement P/S.....210.00

## DIAGNOSTICS

Amiga Diagnostician: Book:
Software/Schematic .....14.95
Service Manuals.....Call
SAMS Computerfacts.....Call
Dr. Ami (software).....29.35
AMI Alignment System.....28.50
Low cost/remanufactured printheads .....Call

## OUR 12TH YEAR!

## ROCKWELL AMIGA UPGRADES

### \* ENHANCED CHIP SET \*

#### Super Denise 8373 Upgrade

Now utilize productivity and scan mode, etc. Super hi-res mode (1280 x 200 pixels). An absolute must with 2.0. \* \$54.40 (tentative price)

**Fatter Agnus (8372A)**—1 MB with FREE Rockwell chip puller (a necessity) and complete instructions .....\$84.95

**Multistart II**—NEW ROM switch for 3 ROMs for A500/2000 and Keyboard Controlled.....\$77.95  
Switch Activated Version .....\$37.95

**Diagnostic Trouble-shooting Software (STU)**, a terrific diagnostic package & absolute must (all Amigas) by Custom Services, Inc. .....\$29.95

**150 Watt "Big Foot" A500 Power Supply** with fan. An absolute must for those adding on more memory .....\$85.50

**Emergency Amiga Startup Kit**—Sold to government PXs and now available to all. Kit has major chips, parts, schematics, instructions and diagnostic software programs, etc .....\$99.50

**Insider II** — ØK Board for A1000 .....\$199.95

**Insider II** — 1.5MB for A1000.....\$278.00

**MegAChip 2000™**—Upgrade your A2000 to 2MB of chip RAM. Includes A3000 2MB Agnus chip .....\$332.00 less substantial rebate. **MegAChip 2000** now available for your A500. FREE chip puller with either.

### \* EXCLUSIVE \*

Amiga 500 Printed Circuit Boards (rev. 4 & up) are now available at a phenomenal price. Buy them populated or unpopulated. Don't miss out on this one! CALL FOR PRICES.

## SEND FOR OUR FREE 36 PAGE CATALOG

3 Chestnut Street • Suffern, NY 10901

Add UPS charges to above.

Customer Service (914) 357-2424 Fax (914) 357-6243

Order line only 1-800-292-7445

Hours: 9-5 EST

Prices subject to change



We ship worldwide

Circle 20 on Reader Service card.

## Manufacturers'/Distributors' Addresses Continued

### Digital Graphics Library

1382 Third Ave.  
Suite 333  
New York, NY 10021  
212/978-8508

### Dynamix

99 W. 10th, Suite 224  
Eugene, OR 97401  
503/343-0772

### EasyScript!

10006 Covington Dr.  
Huntsville, AL 35803  
205/881-6297

### Electronic Arts

1820 Gateway Dr.  
San Mateo, CA 94404  
415/571-7171  
800/245-4525

### Fred Fish Catalog Disk Update

1835 E. Belmont Drive  
Tempe, AZ 85284

### Free Spirit Software

PO Box 128, 58 Noble St.  
Kutztown, PA 19530  
215/683-5609

### Gold Disk

5155 Spectrum Way, Unit 5  
Mississauga, Ont.  
Canada L4W 5A1  
416/602-4000  
800/GOLD DISK

### Great Valley Products

600 Clark Ave.  
King of Prussia, PA 19406  
215/337-8770

### Haitex Resources

PO Box 20609  
Charleston, SC 29413  
803/881-7518

### Hologramophone Research

638 Summit Ave.  
St. Paul, MN 55105  
612/228-9142

### Impulse

6870 Shingle Creek  
Parkway, Suite 112  
Minneapolis, MN 55430  
612/566-0221

### Interactive Video Systems

7245 Garden Grove Blvd.  
Suite E  
Garden Grove, CA 92641  
714/890-7040

### Intercore Development

7 Dover Hill Dr.  
Nesconset, NY 11767  
516/361-6998

### Interplay Productions

1061 N. Kraemer Place  
Suite B  
Anaheim, CA 92806  
714/666-2911

### Kara Computer Graphics

2554 Lincoln Blvd.  
Suite 1010  
Marina Del Rey, CA 90291  
213/578-9177

### Konami

900 Deerfield Pkwy.  
Buffalo Grove, IL 60089  
708/215-5100

### Lake Forest Logic

28101 E. Ballard Rd.  
Lake Forest, IL 60045  
708/816-6666

### M.A.S.T.

1395 Greg St.  
Sparks, NV 89431  
702/359-0444

### MegageM

1903 Adria  
Santa Maria, CA 93454  
805/349-1104

### Microf Software

PO Box 1072  
Exton, PA 19341  
215/MICROFT

### MicroSearch

9896 Southwest Freeway  
Houston, TX 77074  
713/988-2818

### Mr. Hardware

PO Box 148  
Central Islip, NY 11722  
516/234-8110

### NEC Technologies

1414 Massachusetts Ave.  
Boxboro, MA 017019  
508/264-8000  
800/632-4636

### NerveWare

171 E. 99th St. #20  
New York, NY 10029  
212/369-1733

### New Horizons Software

206 Wild Basin Rd.  
Austin, TX 78746  
512/328-6650

### NewTek

215 S.E. 8th St.  
Topeka, KS 66603  
913/354-1146  
800/843-8934

## Manufacturers'/Distributors' Addresses Continued

**Oidata**  
532 Fellowship Rd.  
Mount Laurel, NJ 08054  
800/654-3282  
609/235-2600

**Pantone Inc.**  
55 Knickerbocker Rd.  
Moonachie, NJ 07074  
201/935-5500

**Precision Software**  
8404 Sterling St., Suite A  
Irving, TX 75063  
214/929-4888

**Progressive Peripherals & Software**  
464 Kalamath St.  
Denver, CO 80204  
303/825-4144

**Psynopsis Ltd.**  
29 St. Mary's Court  
Brookline, MA 02146  
617/731-3553

**QMS**  
One Magnum Pass  
Mobile, AL 36618  
205/633-4300  
800/523-2696

**RCS Management**  
120 McGill St.  
Montreal, Que.  
Canada H2Y 2E5  
514/288-7825

**ReadySoft**  
30 Wertheim Court, Unit 2  
Richmond Hill, Ont.  
Canada L4B 1B9  
416/731-4175

**Right Answers Group**  
PO Box 3699  
Torrance, CA 90510  
213/325-1311

**Saxon Industries**  
14 Rockcress Gardens  
Nepean, Ontario,  
Canada K2G 5A8  
613/228-8043

**Shereff Systems**  
15075 S.W. Koll Pkwy.  
Suite G  
Beaverton, OR 97006  
503/626-2022

**Soft-Logik**  
11131 South Towne Sq.  
Suite F  
St. Louis, MO 63123  
314/894-8608

**Software Publishing**  
1901 Landings Dr.  
Mountain View, CA 94043  
415/962-8910

**SoftWood**  
PO Box 50178  
Phoenix, AZ 85076  
602/431-9151

**Star Micronics America**  
420 Lexington Ave.  
Suite 2702  
New York, NY 10170  
212/986-6770

**Strategic Simulations**  
675 Almanor Ave., Suite 201  
Sunnyvale, CA 94086  
408/737-6800

**Supra**  
7101 Supra Dr. S.W.  
Albany, OR 97321  
503/967-9075  
800/727-8772

**Tab Books**  
13311 Monterrey Ave.  
Blue Ridge Summit, PA 17294  
800/822-8138

**Texas Instruments**  
PO Box 2909  
Austin, TX 78769  
800/527-3500  
512/250-6679

**The Disk Company**  
11040 Santa Monica Blvd.  
Suite 300  
Los Angeles, CA 90025  
213/478-6767

**TTR Development**  
6701 Seybold Rd.  
Madison, WI 53719  
608/277-8071

**UBI Soft**  
Distributed by Electronic Arts

**Unili Graphics**  
143 Lorraine Ave.  
Pittsburg, CA 94565  
415/439-1580

**US Gold**  
Distributed by Accolade

**Virtual Reality Laboratories**  
2341 Ganador Court  
San Luis Obispo, CA 93401  
805/545-8515 ■



### Spotlight on Software

Action Stations .....	31.99
Ami-Back .....	47.99
<b>AMOS</b> .....	<b>59.99</b>
<b>AMOS Compiler + 1.3 Upgrade</b> .....	<b>36.99</b>
Armour-Geddon .....	31.99
Art Department Professional .....	149.00
Art Dept Pro Conversion Pack .....	55.00
AudioMaster III .....	60.00
B.A.D. 4.0 .....	31.99
Bane of the Cosmic Forge .....	35.99
Bane/Cosmic Forge Survival Kit .....	13.00
Barney Bear Goes Camping .....	22.50
Bars & Pipes Professional .....	215.00
Bars & Pipes Optional Disks .....	37.99
Battle Chess II .....	31.99
Baud Bandit .....	31.99
Blitz BASIC .....	106.00
Bread & Butter Fonts .....	59.99
Brigade Commander .....	29.99
CanDo 1.5 .....	85.00
Cinnamon Toast Fonts .....	59.99
Cross DOS 4.0 .....	24.99
Das Boot .....	35.99
Design Works .....	75.00
<b>Discovery Math/Spelling 2.0</b> .....	<b>45.00</b>
Distant Suns 4.0 .....	59.99
Doctor AMI .....	31.99

### Great Prices! Superb Service!

For information or price listing:

**414-548-8125**

Pursuitable BBS:

**414-548-8140**

SpectraColor .....	58.99
Speedball II .....	31.99
SuperBack .....	47.90
Teacher's Toolkit .....	29.99
Team Yankee .....	35.99
Vista Professional .....	89.00
Wonderland .....	35.99
Workbench Management System ..	32.99
World Class Soccer .....	24.99

### ICD, Inc.

Ad IDE 40 .....	109.00
Ad IDE 40 Shuffle Board .....	32.99
AdRAM 540 0K .....	109.00
AdSCSI 2080 .....	185.00
AdSpeed .....	219.00
Flicker Free Video .....	309.00
Prima 52Q .....	489.00
Prima 105Q .....	685.00

### Spotlight on Hardware

Accelerator, GVP SCSI 22 MHz .....	899.00
Accelerator, GVP SCSI 33 MHz .....	1635.00
Accelerator, Sapphire 68020 .....	249.00
AIRLink .....	45.99
ATOnce .....	269.00
Bodega Bay .....	299.00
Color Splitter .....	106.00
DC TV .....	385.00
FireCracker Board .....	889.00
Floppy Drive, Internal 500 .....	89.00
Floppy Drive, Internal 2000 .....	89.00
Floppy Drive, RocTec Slim .....	89.00
HAM-E Plus .....	395.00
HardCard, GVP 105Q Series II 0/0 ..	599.00
HardCard, GVP 42F Series II 8/0 ..	475.00
HardCard, GVP 52Q Series II 8/0 ..	519.00
HardCard, GVP 105Q Series II 8/0 ..	629.00
Harddrive, Impact 500/42F Ser II ..	569.00
Harddrive, Impact 500/52Q Ser II ..	619.00
Harddrive, Impact 500/105Q .....	849.00
IllumiLink .....	89.99
Imagine Companion Book/Disk .....	21.99
MIDI, ECE 500/2000/3000 .....	52.00
Modem, Courier HST Dual Stand ..	915.00
Modem, Courier V.32bis 14.4 ..	629.00
Modem, DataLink 2000 MNP .....	165.00
Mouse, Beetle Mouse .....	39.00

### Softwood, Inc.

Animal or People Clip Art .....	46.99
Classic or Collector's Clip Art .....	46.99
Electric Thesaurus .....	31.99
Pen Pal .....	85.99
Proper Grammar .....	59.99

#### Back to School Special!

Purchase ANY word processor and get Proper Grammar for only ..... 55.00

E-Z FM Synthesizer .....	36.99
Elvira .....	35.99
<b>Eye of the Beholder</b> .....	<b>43.99</b>
F-15 Strike Eagle II .....	35.99
Flight of the Intruder .....	35.99

Gods .....	33.99
Gunboat .....	31.99
Halls of Montezuma .....	31.99
Harpoon .....	43.99
HiSoft BASIC Professional .....	57.99

HyperBook .....	64.99
ImageFinder .....	45.99
Imagine .....	195.00
Interface Design Kit .....	36.99
King's Quest V .....	35.99

Lattice C SAS/C .....	199.00
Lemmings .....	31.99
Lunar Construction Set .....	19.99
MR Back-Up Professional .....	34.99
Map Master .....	59.99

Maverick .....	25.99
Max Plan+ .....	58.99
Medieval Warriors .....	31.99
Moonbase .....	31.99
PageStream 2.1 .....	185.00

PageStream Forms: Business .....	24.99
Pelican Press .....	58.99
Pick 'N Pile .....	28.99
Pixel 3D .....	51.99
PowerMonger .....	35.99
PowerPacker Professional .....	19.99
Pro Vector .....	175.00
Pro Write 3.0 .....	95.99
QuarterBack .....	43.00
QuarterBack Tools .....	53.00
Qwikforms for PageStream .....	25.99
Railroad Tycoon .....	35.99
RX Tools .....	34.99
Scala .....	269.00

Scenery Animator .....

Screen Maker .....

Secret of the Silver Blades .....

Secret of Monkey Island .....

ShowMaker .....

### Orders Only Please:

**800-544-6599**

Visa/MC/CODs

**Make Safe Harbor YOUR Computer Port**  
W255 N499 Grandview ■ #204 ■ Waukesha, WI 53188 ■ 9 AM to 5 PM Mon.-Sat.

\$5.95 ea  
1-9 Disks\$4.95\* ea  
10-24Disks\$3.95\* ea  
25+ Disks\* Anti-Virus Free on all orders with  
15 or more disks!

## Public Domain Library

We have been the official Public Domain Library of all of the best Amiga magazines. Find out why these magazines choose us! Each of our disks are jam packed with only the best programs. The first two letters on each disk indicate the orientation of the disk; DD# intermediate to advanced - often contains source, WB# general interest - most programs can be run from the workbench, and FD# games and entertainment. Order our disk based catalog and receive a coupon for a complimentary volume with your next purchase. We have always used only SONY blank disks!

### Featured Disk

**DD79abcd: Amiga C Tutorial** - This is the most comprehensive C language, Amiga orientated set of tutorials available. Includes full working examples, source code and an incredible set of lessons. Included are full discussions and examples of every topic on Amiga programming. Four disk set, counts as three.

### New Disks

**FD63: Quizzshot!**: an interactive multimedia quiz game show program that tests your knowledge of DpaintIII. The questions can be changed so you mayquiz on whatever topic you'd like.

**FD62: PomPom Gunner.** An extremely smooth and well done World War II gunnersimulation. Requires 1 meg of chip memory.

**FD61: Games Solitaire;** great graphics, plays two versions. Klide; aninteresting piece of eyecandy. Extreme Violence; 2 player kill or be killed game. YATC, A Tetris clone with Artificial Intelligence. Genesis;create realistic 3d fractal worlds.

**FD60: Games In Nebula,** race over a 3d world to destroy enemyinstallations. Interferon; a great Dr. Mario clone. Enigma; is it a gameor a puzzle?

**FD59: Game Potpourri Xenon III** is an almost exact clone of the commercial game of the same name...a great shootemup. Crossword will take lists of words & automatically generate crossword puzzles for any Epsom compatible printer.

**FD58: GAMES!** Includes Steinschlag; a great Tetris clone from Germany with music. SCombat: simulate battle between up to 40 players & monsters. Imperium Romanum: Battle up to 4 players for control of the Mediterranean in this Risk-esque game.

**FD57: Arcade Games** Includes 2 true commercial quality games. MegaBall is the successor to Ball; features 5 full musical scores, multiple levels and addicting gameplay. Gravity Attack is a psychadelic trip through several different worlds--each distinctly different.

**WB95: Checkbook Accountant 2.0** This program is definitely commercialgrade; we've seen many checkbook programs and this is absolutely the best. Full budgeting, transaction recording and report generation.

**WB94: Desert Storm** This disk contains an interactive hypermediapresentation about the conflict in the Persian Gulf. Very nicely done with colorful maps/graphics.

**WB93: Workbench Extras #2** This disk contains the utilities that Commodore should have shipped with the Amiga; VirusX4.0, Snap, FixDisk (recovercorrupt/deleted files), Disk Optimizer (floppy & hard), MachIII (screenblanker, hotkey, mouse accel., macro, clock utility), GOMF (a gurubuster)and PrintStudio.

### Other Great Disks!

**FD5: Tactical Games** - BullRun - a Civil war battle game, Metro - you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster and financial ruin. Very very habit forming.

**FD6: GAMES!** : This disk is chock full of games including; Checkers, Clue, Gold - A new slide the pieces puzzle. Jeopardy - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.

**FD7: PACMAN** - This disk contains several pacman type games including; PacMan87, MazMan and Zonix.

**FD9: Moria** - This has great graphic controls, multiple spells, similar to Larn and Hack. Play time several weeks!

**FD10: HackLite** - A dungeon adventure game. Considered a must-have classic. This is the second release of this game on the Amiga. Great Amiga graphic interface. Play time several weeks!

**FD11: Las Vegas and Card Games** - Las Vegas Craps - The best Las Vegas Craps simulation, every written for any computer. Contains extensive HELP features, Also Thirty-One, VideoPoker and more.

**FD12A,FD12B: Star Trek, The Game** - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1Mb and two drives (or hd).

**FD13: Board Games** - contains multiplayer Monopoly, Dominos, Paranoids, and others.

**FD14: Dungeon Master Hints and Arcade Games** - DM maps, spells, item location, and hints and more, also on this

game, and Psycoblast new creation idea game.

**FD56: Arcade** - Includes SpaceWar, HueyRaid a well done helicopter arcade game, and PowerPong a great expanded pong game.

**WB4: Telecommunication** - This disk contains several excellent pd communication programs designed to get you on line quickly and easily. Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of transfer protocols, Comm (1.34) - Last version of one of the best public domain communications programs ever made on the Amiga. Handshake (2.12a) Handshake is a Full featured VT52/100/102/220

**WB5 - Fonts #1** - Several fonts (35) for the Amiga, also included are five PageStream fonts, and ShowFont - a font display program.

**WB6: Video Fonts #2** - ShowFont(4.0) This program allows you to quickly and painlessly view all 256 characters in a typical font. Large AmigaDos system fonts (many up to 56pts).

**WB7: Clip Art** - This disk is loaded with black and white clip art. Includes trees, watches, tools, US and State maps, and more.

**WB8: Icons** - Truly a multitude of various types and kinds. Also includes IconMeister, IconLab, and others great utilities to help generate icons.

**WB10: Virus Killers** - The latest and best VirusX(4.0), Kv(2.1), and ZeroVirus(1.3).

**WB11: Business** - Clerk(4.0), finally a full featured business accounting PD program for the small to medium company. Includes receivables, payables, end of month and uch more.

**WB12: Disk Utilities** - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. A must have!

**WB13: Printer Drivers and Generator** - over 70 different drivers, and if these don't do it, with PrtDrvGen you can make your own.

**WB14: Video** - On this disk are several utilities for the video enthusiast. We have included multiple slates, video titling, Bars and Tone, Gray Scale, Screen fades and swipes, Interlace toggles, and SMPTE Calculators. Also on this disk is a full featured video cataloging program.

**WB15: Business** - This disk contains a spreadsheet, a database, a project/time management program and financial analysis (stocks).

**WB16: Business** - This disk contains an inventory manager, a loan analysis program, a great calendar/scheduler, a rolodex program, and pennwise a good "Cash Book" accounting for home or office.

**WB17: Word/Text Processors** - This disk contains the best editors. Includes, TextPlus (v2.2e) a full featured word processor, Dme(v1.35) a great programmers editor with strong macro features, TexED(v2.8) an enhanced Emacs type editor, and a spell checker.

**WB18: General Interest** - DiskSalv V1.42 a disk recovery program for all Amiga file systems, FixDisk V1.0 another file recovery program with features DiskSalv doesn't have, 3DLook gives a 3D appearance to your WorkBench, Clean V1.01 a program to de-fragement memory, Tracer - trace any part of an image.

**WB19: Fonts #3** - Several more great fonts. These, like the other font disks work great with Dpaint and WYSIWYG word processors.

**WB20: Graphics and Plotting** - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function, BezSurf2 - produce awesome pictures of objects one could turn on a lathe. Can also map iff image files onto any surface that it can draw. Now compatible with most 3D packages, and VScreen - makes a virtual screen anywhere, great for DTP.

**WB21: Educational** - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any entered user global coordinates. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.

**WB22: Disk Utilities #2** - MrBackup, KwickBackup - two well done utilities to help with harddisk and floppy disk backups, FileMast - a binary file editor, Labelprinter - Disk label printer with very powerful features.

**WB23: Games** - Nagel - 26 Patrick Nagel pictures of beautiful women.

**WB24: Graphics and Sound** - This disk has several different Mandelbrot type programs for generating stunning graphics. Includes, MandelMountains - a realistic terrain generator, Fragen - generated recursive fractals from user input, Mandelbrot and Tmandel - two fast mandelbrot generators, also Mostra - the best IFF display program to date, will display ALL IFF's including Dynamic HAM, and Sound - a great IFF sound player, will play anything. Try this disk!

**WB25: Circuit Board Design** - several terrific routines for the electronic enthusiast, Including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Mcad (1.26) a well done new release of this PD CAD program, now comes with predrawn common circuit components for insertion into schematics.

**WB26: Utilities** - Several well done utilities, some will require moderate knowledge of a CLI or Shell for setup, Chatter Box - this one will play any user defined sound after any event (ie. disk insert, mouse click, disk removal...), Artn - The Amiga real time monitor, gives you full control of the Amiga OS, very powerful program, Helper - help program to make learning the CLI easier, and more!

**WB27: 3d Graphics** - This disk contains several neat programs to use with your 3d modeling/raytracing programs 3dFonts - Full vector font set for use with 3d programs, FontMaker - make 3d fonts from any system font, Make3DShape - create 3d shapes from any image, DumpToIFF - create 3d animations preserves pallet, and World3d - a demo program of a front end for use with DKBRender.

**WB28: Graphics** - On this disk are several programs to create stunning graphical images including, MPatch - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that are symmetrically similar to a rose, SimGen - display those spectacular images as part of your

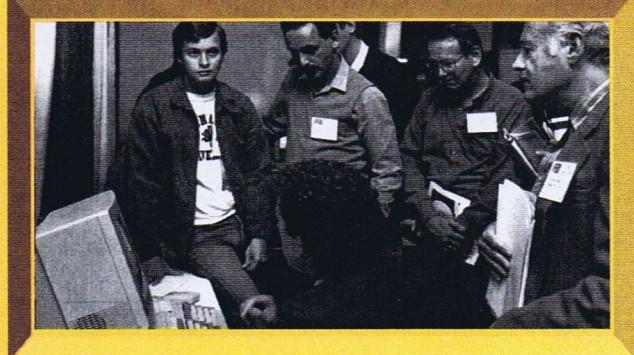


# THE AMIGA EVENT 2.0

## AmiEXPO OAKLAND, CALIFORNIA

AmiEXPO brings the Amiga™ Event to Oakland Convention Center, October 4-6, 1991! Don't miss:

- ★ State of the Art Video, Graphics, and 3D Software
- ★ Hardware to Expand your Amiga to the Max
- ★ Bargains on the Hottest Software and Hardware
- ★ Amiga Classes, Seminars and Keynote Events
- ★ World Premieres of Major Amiga Products



## KEYNOTE PRESENTATIONS WOW 'EM!

Each meeting day a special presentation will highlight the best in Amiga technology:

Friday, 5:00 PM

**THE AMIGA VIDEO MACHINE**  
Special MultiMedia Event  
AMIGA WORLD PREMIERE

Saturday, 12:00 Noon

**THE CDTV EXPERIENCE**  
The Future of Home Entertainment  
AMIGA WORLD PREMIERE

Sunday, 12:00 Noon

**THE ART OF THE AMIGA**  
Next Generation Graphics Today  
AMIGA WORLD PREMIERE

The Parc Oakland Hotel is the official AmiEXPO headquarters hotel, and is located at 1001 Broadway, adjacent to the Oakland Convention Center. Rooms are available for a special AmiEXPO discount rate: \$105 Single or \$125 Double. To make a reservation, call the Parc Oakland directly at 415-451-4000.  
**HOTEL DEADLINE IS SEPTEMBER 18, 1991.**

American Airlines, the official carrier for AmiEXPO is pleased to offer a 5% discount off any fare to Bay Area airports. Call American at (800) 433-1790 and give them Star File # 07Z14K.

## TICKETS NOW AVAILABLE

Advance registration will save you \$5 off the on-site fee - and time in line. Call us at **1-800-32-AMIGA** with a Visa or MasterCard or return the coupon with a personal check or money order made out to AmiEXPO. **PRE-REGISTRATION DEADLINE IS SEPTEMBER 12, 1991**

**SINGLE DAY TICKET \$15.00**  
**MULTI-DAY TICKET \$20.00**

These prices already reflect the \$5 discount. Prices are \$5 more at the door. No refunds or cancellations after the pre-registration deadline. Your registration to AmiEXPO includes admission to the Exhibition, Keynote Sessions, Amiga Seminars, and the AmiEXPO Artists Theatre. This Preliminary Program is subject to change.

**PLEASE NOTE:** You will receive a confirmation of your registration. No tickets will be mailed to you. When arriving at show site, go to Advance Registration to claim your tickets. If you are registering more than one person, please use a separate coupon for each person.

## FREE AMIGA SEMINARS

AmiEXPO Seminars and Panels are all included FREE with your admission to the Exhibits. Each day, experience the best and the latest that Amiga developers and users have to offer.

### FRIDAY

1:00 AMIGA MUSIC/VIDEOS  
2:30 GRAPHICS OF THE 1991 ART & VIDEO AWARDS  
3:00 INSIDE WORKBENCH 2.0  
5:00 SPECIAL KEYNOTE PRESENTATION

### SATURDAY

11:00 VIDEOS OF THE 1991 ART & VIDEO AWARDS  
12:00 SPECIAL KEYNOTE PRESENTATION  
1:30 AMIGA MULTIMEDIA  
3:00 GRAPHICS OF THE 1991 ART & VIDEO AWARDS  
4:00 EXTENDED GRAPHIC DISPLAYS

### SUNDAY

12:00 SPECIAL KEYNOTE PRESENTATION  
1:30 VIDEO PRODUCTION FUNDAMENTALS  
3:00 VIDEOS OF THE 1991 ART & VIDEO AWARDS  
4:00 NEXT GENERATION AMIGA GRAPHICS

## SHOW HOURS

October 4

Friday

1 PM to 6 PM

October 5

Saturday

10 AM to 6 PM

October 6

Sunday

10 AM to 5 PM

AmiEXPO is a registered trademark of AmiEXPO, Inc.

Amiga is a registered trademark of Commodore-Amiga, Inc.

AmigaWorld Magazine is a registered trademark of IDG Communications, Inc.

Circle 3 on Reader Service card.

# OCTOBER 4-6 RELEASE

## NOVICE CLASSES MAKE IT EASY

AmiEXPO offers two Novice Classes for those beginning with the Amiga and computing in general. Each class is 3 hours long, costs \$30 per person and is limited to 40 students.

### BASIC AMIGA CONCEPTS

10-1, Fri. & Sun.; 2-5, Sat.

- Introduction to All Amiga Models • All Peripheral Expansion
- Workbench 2.0 Coverage • Beginning CLI



### UNDERSTANDING THE CLI

2-5, Fri. & Sun.; 10-1, Sat.

- Unleash your Amiga's Power • Most Essential CLI Commands
- Exploring Public Domain • The World of Telecommunications

## MASTER CLASSES - MEET THE EXPERTS

To efficiently get the most out of your Amiga, you need an expert. Amiga Master Classes are designed to provide information on important professional topics.

### AMIGA VIDEO

Instructor: Oran J. Sands III

#### VIDEO I

10-1, Friday and Saturday

- Basic Video & Amiga Relationship • Video Hardware
- S-Video vs NTSC • Video Software Overview

#### VIDEO II

2-5, Friday and Saturday

- Continuation of Video I • Optimizing Video Output
- Video Toaster • Pro Video Post • Genlock Comparison

### AMIGA ANIMATION

Instructor: Steve Segal.

#### ANIMATION I

10-1, Saturday and Sunday

- 2D Character Animation • Digitized Animation
- Storyboarding • Character Design • Recording The Work

#### ANIMATION II

2-5, Saturday and Sunday

- 3D Animation • Character Modelling • Texture & Bump Mapping
- Solid Modeling • Ray Tracing

### AMIGA AREXX

Instructor: R. L. Stockton

#### AREXX I

10-1, Sunday

- Basic Language Structure • Libraries
- Host Addresses • String Handling

#### AREXX II

2-5, Sunday

- Commercial Applications • Non-Amiga Rexx
- ARexx in WB 2.0 • Graphical User Interfaces

### AMIGA GRAPHICS

Instructor: Jim Sachs

#### GRAPHICS I

10-1, Friday and Saturday

- Basic Graphic Concepts • Anti-aliasing • HAM Painting
- Palette Selection • Brush Painting • Stencils

#### GRAPHICS II

2-5, Friday and Saturday

- Advanced Graphic Displays • Image Processing
- Animation Planning • Beyond Bitmaps • Going to Print

### AMIGA 3D

Instructor: Tony Dispoto

#### 3D I

10-1, Saturday and Sunday

- 3D Concepts • Modeling • Rendering Engines • Lighting
- Sculpt-Animate 4D • Turbo Silver • Imagine

#### 3D II

2-5, Saturday and Sunday

- Continuation of 3D I • 24 Bit Rendering • Use of Paths
- Optical Disk Recording • 3D Animation •

### AMIGA MULTIMEDIA

Instructor: Steve Gillmor

#### MULTIMEDIA I

10-1, Friday

- Multimedia Defined • Choosing Your Tools
- Hypertext and Hypermedia • Analysis of Student Projects

#### MULTIMEDIA II

2-5, Friday

- Commercial Applications • ARexx in Multimedia
- Multimedia Design • CDTV and CD-Rom Development

**Now Here: AmiEXPO SUMMER VIDEO • COVERING EXHIBITS, SEMINARS, & CLASSES  
A FULL HOUR OF THE LATEST AMIGA INFO • ONLY \$20 (+ \$1.50 S&H) • ORDER BELOW!**

**Registration is  
\$5 More At The Door**

### AmiEXPO - FALL

Single Day - \$15 \_\_\_\_\_

Multi- Days - \$20 \_\_\_\_\_

**Novice Class(es) - List Class and Time - \$30 Each**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Master Class(es) - List Class and Time - \$60 Each**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**AmiEXPO Summer Video Tape - \$21.50**

Total Amount Enclosed \_\_\_\_\_

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

For \_\_\_\_\_ MasterCard or \_\_\_\_\_ VISA Payment

Expiration Date \_\_\_\_\_

Account Number \_\_\_\_\_

Name as it appears on card: \_\_\_\_\_

Signature \_\_\_\_\_

Make Check or Money Order Payable to:

AmiEXPO • 465 Columbus Ave., Ste. 285

Valhalla, NY 10595

800-32-AMIGA • 914-741-6500

# TOOL CHEST

## Buy 2 - Get 1 FREE!

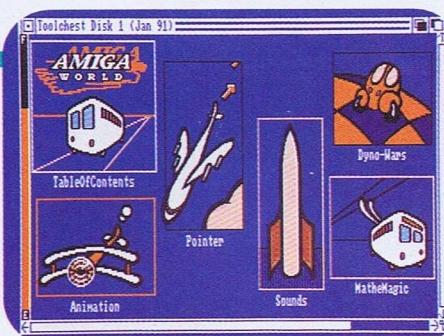
**#TC14.** A 3-D graphics special issue, containing vector objects, TicTacToe, a graphing program, and 3-D ray traced animation. Keep names and addresses organized with a friendly database and address book. Perform an analysis of digitized sound and display it in a graphic manner. Get B&W clip art food images suitable for desktop publishing.

**#TC16.** Generate complex 3-D vector objects of a wide variety of terrain, from flat plains to rocky mountains. Plot out mathematical equations. Format your text files to print on both sides of the paper. Plus six digitized sounds perfect for animations and multimedia presentations and a mouse-driven graphic adventure game with excellent digitized sounds. Also includes Tinyball, "The World's Smallest Baseball Arcade Game."

**#TC21.** Battle your computer to take over the planet Circe. Assign RGB values to printer and screen output. Get a powerful database manager suitable for home and small business. Create animated sprites by editing up to 100 frames at once. Execute CLI programs, batch files and ARexx scripts with the simple click of a gadget.



**#TC22.** Design instruments and waveforms for use in other programs. Play your Amiga keyboard like a piano. Change the width, height, location, title, colors and depths of the CLI window with a single command. See how a piston works with a Turbo Silver animation. Plus a slick checkbook manager and a file encryption and decryption tool.



**#TC23.** Create small windows from CLI scripts. Find the letter, file or program you misplaced on your drive. Play the strategic game of Dyno-Wars. MatheMagic lets you find the day of the week for any date in this century; provides the mean, standard deviation, skew and kurtosis for selected data; finds a polynomial to a set of XY data; and solves a set of algebraic equations.

**#TC25.** Save your screen to an IFF file. One or two can play "Warrior", a fun shoot-'em-up adventure game. See how fast your Amiga does solid-polygon animations. Change the colors of your screen. Examine memory at any location in the Amiga. Also includes Hi-Res IFF brushes of all 50 states and 10 Canadian Provinces.

**#TC26.** Generate word search puzzles. Join the war between the Allied Navy and the Empire Fleet. Search binary and/or text files for a particular word or string. Get rid of cigarettes, alcohol, pills and needles with DrugBusters. Plus, fun machine sounds, and Early American vector objects.

**#TC31.** Personalize and print calendars to organize your schedule. Display your total memory available. See how fast you can deliver pizzas. Perform basic formatting of text files.



## ORDER FORM

Circle your selection below and enclose this form with proper payment.  
Buy two items at \$12.95 each and select an additional one FREE!

TC14    TC23

TC16    TC25

TC21    TC26

TC22    TC31

Product total

\$ \_\_\_\_\_

Add \$3.50 postage/handling for each order  
(Canada & Mexico \$5.00, Foreign orders \$11.50)

\$ \_\_\_\_\_

Canadian orders add 7% GST  
(GST reg. #126038405)

\$ \_\_\_\_\_

Total enclosed

\$ \_\_\_\_\_

Check / money order enclosed

Charge my:  MasterCard  Visa  
 Amex  Discover

CARD#

EXP. DATE

SIGNATURE

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

MAIL ORDER TO: **Tool Chest Back Issues** TCB1991  
P.O. Box 802 • 80 Elm Street • Peterborough, NH 03458

**1-800-343-0728 or 1-603-924-0100**

# InfoMarket

## ATTENTION: BASIC PROGRAMMERS & FOOTBALL FANS

**BASICFooTball** is here! **BASICFooTball** is a fully animated 11 on 11 football strategy game, written ENTIRELY in AmigaBasic!

**BASIC PROGRAMMERS:** **BASICFooTball** is not compiled! View **BASICFooTball's** code and learn techniques that can increase memory for Basic 400%. Unlock the powerful animation, and sound routines that can be used in almost any game you wish to create. **BASICFooTball** even comes with a manual that explains in detail all code used in this fantastic software package.

**FOOTBALL FANS:** Stop watching TV SPORTS and play the computer game that lets YOU be the HEAD COACH on the GRIDIRON! In **BASICFooTball** you can play against a friend or a computer coach that really challenges the skill of the football gamer.

**BASICFooTball** at \$19.99 is economical in times of skyrocketing software prices. Plus all orders received on or before 31 AUG 91 will receive a pack of (5) 3.5" disks w/labels ABSOLUTELY FREE! So order today!

TO ORDER CALL (804) 591-7225 or WRITE:



MahoneySoft  
P.O. Box 2962  
Newport News, VA 23609

OPEN 4:00 pm to 10:00 pm EST

S&H \$4.00 ALL ORDERS SHIPPED WITHIN 24 HOURS 1ST CLASS!

Circle 78 On Reader Service Card.

## VISIONSOFT

PO Box 22517 • Carmel, CA 93922

MEMORY	UNIT	2MB	4MB	8MB
1 x 8-30 SIMM	\$45.50	91	180	356
4 x 8-30 SIMM	199.00	—	199	396
256 x 4-80	5.50	88	176	349
1 x 1-80	5.50	88	176	349
256 X 1-80	1.75	112	192	384
1 x 4-80 SC ZIP	27.50	110	220	432
ICD AdRAM 540	89	175	255	—
ICD AdRAM 2080	119	199	279	429
IVS META 4	—	229	319	—
GVP II/8 SCSI HC	199	289	379	549
AdSCSI 2080	179	269	359	529

TRUMP PRO A500/49M ....459 AdIDE/TEAC 43M....339  
DL EXPRESS/MNP/FAX....205 AdSPEED.....209  
A2000 INT. FLOPPY.....85 A500 INT FLOPPY.....99  
SUPRAMODEM 2400.....99 SUPRA 500RX/1M.....135  
BIGFOOT A500 POWER.....85 KXP 1180.....159  
STAR NX 2420R.....309 KXP 1124.....249

**ORDERS 800-735-2633** Visa / MC  
Info & Prices: 408-626-2633 Fax 408-626-0532  
Call for Current Quantity Pricing.

Circle 86 On Reader Service Card.

## NEW!! ULTRA HIGH RESOLUTION 35mm COLOR SLIDES

from COLOR POSTSCRIPT • 24-BIT IFF • HAM • Standard IFF

• Over 4000-line Resolution • NO Scanlines • NO Curvature Distortion • Brilliant Color

HAMMOND PHOTOGRAPHIC SERVICES  
(213) 390-3010

Call or Write for order form, price list & sample:  
11280 Washington Place  
Culver City, California 90230

Circle 89 On Reader Service Card.

## AMIGA™ NEW UPGRADE FOR AMIGA 500\* OWNERS AMIGA™ (Stay Current with Latest A3000 Technology)

MegAChip by "DKB" is now available for the A500.

**STOP RUNNING OUT OF CHIP RAM.** Utilize the power of the Amiga 3000 in your A500 (or A2000). Utilize 2MB of chip RAM for graphics, multitasking, sound, etc. (Uses Amiga 3000 8372B 2MB Agnus chip.) **\$332.00 less substantial rebate if applicable.** Includes FREE Rockwell chip puller—a MUST!

THE GRAPEVINE GROUP, INC.

MasterCard VISA  
3 Chestnut St., Suffern, NY 10501  
We Ship Worldwide 1-800-292-7445 or 914-357-2424 Hours: 9-5 EST Fax: 914-357-6243

## AMAZING EXPRESS

1441 E. Fletcher Ave.  
Tampa, FL. 33612

### ROCTEC SPECIAL

Internal Amiga Drives

**\$79.96**

External Amiga Drive  
& 512K Ram Card

**\$129.96**

Order Only Line BBS Tech Support  
(800) 323-6511 (813) 977-3940 (813) 977-6511  
**FREE SHIPPING!**

Circle 97 On Reader Service Card.

## MEMORY FOR LESS D RAM BLOWOUT!!

256 x 1 150n.s.....\$1.19 ea.	CPU's
256 x 1 120n.s.....1.39 ea.	68000 16 Mhz.....\$35.00
1 meg x 1 80n.s.....5.75 ea.	68010 8/10 Mhz.....19.95
1 meg x 1 100n.s.....5.25 ea.	68020 16 Mhz.....75.00
256 x 4 80n.s.....5.75 ea.	20 Mhz.....99.00
256 x 4 70n.s.....5.95 ea.	33 Mhz.....199.00
256 x 4 80n.s. zips.....6.50 ea.	68030 25 Mhz.....279.00
256 x 4 100n.s. zips.....6.00 ea.	33 Mhz.....345.00
64 x 4 100n.s.....3.00 ea.	50 Mhz.....375.00
Paula / Denise.....26.50 ea.	Math Co's
1 meg x 8 Simm 80ns 46.50 ea.	68881 12 Mhz.....69.00
1 x 4 DIPS in stock.....CALL	16 Mhz.....75.00
1 x 4 Page ZIPS.....CALL	20 Mhz.....50.00
FATTER AGNUS.....95.00	25 Mhz.....125.00
1.3 Kickstart ROM.....29.95	68882 20 Mhz Special.....99.99
For Amiga 3000	68882 25 Mhz.....225.00
1 x 4 Static Zips.....25.99	33 Mhz.....275.00
256 x 4 80n.s. Static Zips.....7.00	50 Mhz.....350.00
All Crystals	10.00 ea.

APO/FPO, AK & HI, Foreign

Call for shipping charges

SPIRIT BOARDS  
IN 1000 1/2, meg — \$225.00  
XRAM/500/1000 - 2 meg — \$299.00  
GVP/A2000 RAM8 2 meg — \$169.00 4 meg — \$278.00

**MEMORY WORLD** 215-244-7930  
Street Rd. & Bristol Pike Plaza II, Suite 134  
Bensalem, PA 19020  
Attn: Amiga Dept.



Circle 94 On Reader Service Card.

## Authorized Amiga Service Center

2.0 Operating System and E.C.S. arriving this month.

Super Denise 8373 Chip — \$79.95

Workbench 2.0 — Call

Kickstart 2.0 — Call

1.3 ROM Chip .....\$29.00 Big Foot P.S. A500 .....109.00  
8520 CIA Chip .....16.50 A500 Repl. Drive w/ S/O .....94.95  
Fatter Agnus Chip 1MB .....90.00 DKB 2 Meg Chip  
A500 Replace. Drive .....119.00 RAM Board .....249.95  
All RAM Chips in Stock.....Call Fattest Agnus Chip 2MB .....95.00  
Paula Chip .....38.00 Agnus Extractor by Com .....16.95  
A2000 Internal Drive .....99.00 Denise Chip .....35.00  
Quantum 52S H.D. .....389.00 Quantum 1055 H.D. ....449.00  
Epyx 500XJ Joystick .....12.00 Syquest 44MB  
A500 HD Power Supply .....94.00 Removable .....389.00  
A2000 Kbd from Com .....105.00 Syquest 44MB Cartridge .....84.00  
A500 Keyboard .....\$ 95.00 Gary IC Chip .....17.00  
A2000 Power Supply .....189.00 80 Meg Drive for  
A2000 P.S. w/ S/O .....119.00 GVP Acc. ....469.00

Over 600 products in stock for immediate shipping. Please call us. We probably have what you need. We do repairs on Amiga computers with 2-4 day turnaround. A500 — \$125+S.H.  
A2000 — \$190+S.H. Call for shipping on other items.

**Software Hut, Inc.** To order call  
2534 S. Broad St. (800) 848-0079  
Philadelphia, PA 19145 In PA or for info.  
call (215) 462-2268 Fax (215) 339-5336

Circle 89 On Reader Service Card.

## AAMIGA WAREHOUSE

### The Memory Specialist

#### MEMORY

DRAMs	A3000 MEMORY STATIC ZIPS	SUPRA EXPANSION SYSTEMS
256x1 - 80	\$1.75	DATAFLYER 500 \$145.00
256x1 - 100	\$1.75	500RX W/2MEGS \$181.00
256x1 - 120	\$1.75	W/4MEGS \$237.00
256x1 - 15	\$1.30	W/8MEGS \$325.00
256x4 - 80	\$5.95	A2000 2000 \$85.00
1X1-80	\$5.95	Baud Modem
SIMMS	WE WILL PAY YOUR BEST QUOTE!	NEW DATAFLYER RAM 2MB 16Mhz \$179.00
1X8 - 80	\$47.50	DATABOARD 2MB 16Mhz \$179.00
4X8 - 80	\$220.00	W/2MEGS \$174.00

#### DKB Software

INSIDER II	MEGACHIP 2000 2MB OF CHIP RAM! \$269.95	Quantum 105S Ips 19ms \$435
w/1/2meg	W/100 INTERNAL MEMORY BRD	Quantum 52S Ips 19ms \$275
256x1 - 100	\$23.00	Connor 40 Ips 24ms \$219
256x1 - 15	\$23.00	Maxtor 80 Ips 17ms \$365
256x4 - 80	\$23.00	A1000 Hard Drive Kit
1X1-80	\$23.00	A COMPLETE 32MEG SYSTEM HURRY LIMITED SUPPLY

KICKSTART II	MULTISTART II 2500/2000 ROM BRD	DO YOU HAVE KIDS? THIS IS YOUR BEST INVESTMENT TO PROTECT YOUR AMIGA.
A1000 ROM BRD	W/O ROM \$79.95	SECUREKEY INTERNAL SECURITY CARD A2000/3000 \$98.75

Aamiga Warehouse ORDERS ONLY 800-942-9505  
TECH SUPPORT 714-283-0499

VISA COD AM/EX

Circle 98 On Reader Service Card.



**ATTENTION PAGESTREAM USERS!**  
Now you can have perfectly shaded objects for your PageStream 2.1 documents using SHADES • 100 levels of shading • Any color gradient to white using screens • Scale, Stretch, and Rotate • Over 25 different styles and shapes • Use as background or foreground objects • Resolution independent • No more jagged edges • No More Headaches!

Now Only \$24.95 CALL 1-800-967-GRFX (4739)  
Or Send Check or Money Order To:  
SOURCE GRAPHICS: 56 S. Sable #FF207, Aurora, CO 80012  
Colorado Residents: add 3% Sales Tax / Call in (303) 344-2244



## ELECTRONIC SERVICES INTERNATIONAL

CSA Accelerators • Disk Drives • Joysticks • Memory Expansion Printers • Software • Upgrade Chips • Customized Systems

## COMPLETE AMIGA WHOLESALE DISTRIBUTOR

Bodega Bay • Commodore • C.S.A. • Gold Disk • G.V.P. • I.C.D. Konix • Motorola • NewTek • Quantum • Spirit • Supra • Syquest

Sales Technical Support Line 1-800-729-4361 Visa / MC / COD

# InfoMarket

**TANGENT COMPUTER SYSTEMS**

Amiga Public Domain Software Distributor  
ONLY \$2.00 PER DISK!




We have over 700 PD disks. Titles include Fred Fish, Amicus, T.B.A.G., S.M.A.U.G., T.C.U.G., and more. Efficient same-day service. Call or write for a Free Brochure and Disk Catalog.

TCS • P.O. BOX 4534 • San Dimas, CA 91773-8534 • (714) 592-5924

## COLOR RIBBONS & PAPER

Ribbons:	Colors: Black, Red, Blue, Green, Brown, Purple, Yellow	Black	Color	T-Shirt
Price Each		Black	Color	T-Shirt (Heat Transfer Ribbon)
Brother M1109	4.95	5.95	7.00	
Citizen GSX 140	4.00	5.00	7.50	
Citizen GSX 140 4C	*	*	*	
Okidata 192	5.00	7.50	—	
Panasonic 1124	5.00	7.50	—	
Seikosha SP1600	4.50	6.00	7.50	
Star NX1000	3.50	4.50	6.75	
Star NX1000 4C	—	6.25	10.00	
				RAMCO COMPUTER SUPPLIES
				PO Box 475, Manteno, IL 60950 USA
				USA (800) 522-6922 or (815) 468-8081
				Canada (800) 621-5444

## MORE MEMORY FOR LESS

NEW for Amiga 3000	\$25.99 each	32K Buffer Chip	Only
STATIC ZIPS		Panasonic Printer	\$20.00
1 meg x 4 — 32 Pcs.	\$26.95 ea.	1124, 1524, 1624, 1180, 1191	w/instructions
FPU Math Co-processor	\$50.00 each	32K avail. for Citizen Printer	\$35.00
68881 — 20 MHz		Memory Board	
68882 — 20 MHz	\$99.00	HP Laser Printer — (Specify Model)	
8087-3 for bridgeboards	\$50.00	1 meg \$89.00, 2 meg \$139.00, 4 meg \$205.00	
<b>MEMORY WORLD</b>			
Street Rd. & Bristol Pike - Plaza II,		215-244-7930	
Suite 134 • Bensalem, PA 19020		Fax 215-244-7932	
Attn: Amiga Dept.		Add \$4.00 S&H Add \$7.00 2nd Day Add \$4.00 COD	
		VISA / MC / Check / COD	

**RENDER LIGHTWAVE 3D™**  
**ANIMATIONS to VIDEO TAPE**  
**Quality Service - Affordable Price**  
**September DISCOUNTS - Call for Details!**

**A NEW LIGHT VIDEO (704) 299-4341**  
PO BOX 18311 Asheville, NC 28814

## USE ANY PC/AT COMPATIBLE KEYBOARD WITH YOUR AMIGA(tm)

OPTIONS  
FLEXIBILITY  
AFFORDABILITY

ANY  
PC/AT-COMPATIBLE  
KEYBOARD

ANY AMIGA  
A1000, A2000, A3000  
& A500

=KB-TALKER=

NO SOFTWARE REQUIRED - TRANSPARENT TO THE USER. AMIGA AND IBM/PC KEYS ARE SELECTABLE ON THE FLY. GAME, REBOOT, AND BRIDGEBOARD COMPATIBLE. PASS-THRU CAPABILITY FOR A2000 KEYBOARDS: 6ft KEYBRD EXTENSION CORD & KEYCAP LABELS. OPTIONAL ADAPTER INTERFACE CABLE KIT FOR A500 USERS.

Co-TRONICS ENGINEERING, P.O. Box 5146, Glendale, AZ 85312-5146, (314) 429-2644

**COMMODORE AMIGA SERVICE CENTER**  
**AMIGA 500 (Repair) \$75.00**  
includes parts/labor  
**1-800-344-4102**  
24 Hour Turnaround  
**A&M Computer Repair**  
20 Guernsey Dr., New Windsor, New York 12550  
(914) 562-7271  
Dealers Call For FREE Catalog



## SIZZLING SOFTWARE

We offer the Best in Public Domain and Adult-Oriented Software.

Over 250 Disks in Stock, Prices as Low as \$3 per Disk.  
Free Brochures, Visa, MasterCard Accepted. Our Disks are Loaded!  
3-Disk Adult Sampler: Send \$10, Signed Statement of Age (21+) to:

**CLEARLIGHT SOFTWARE**  
PO BOX 1411, DEPT. A  
MILWAUKEE, WI 53201



**NEW**

## AMIGA EMERGENCY STARTUP KIT

**NEW**

Stop sending out your Amiga A500/A2000 for repairs. It is now possible to save a lot of time and money by repairing your own Amiga computer. All chips provided in the kit are direct socket plug-ins and do not require soldering. Each kit includes all one needs to "start up" or revive a broken computer. Originally "blister" packaged for government PXs worldwide and now available to the general public. Total cost savings far exceeds purchasing chips on an individual basis. 28 different symptoms (faulty parts) with their remedies are laid out in the Amiga Diagnostic book, which is supplied as part of this emergency startup kit.

DIA-14 KIT CONTAINS:

Buster Chip (U8000), 8520A CIA Chip, 8362 1/2 Bright Denise, 8370 Agnus Chip, PLCC Chip Puller, Basic Schematic, Amiga Diagnostic Booklet and Special Test Diskette with the following tests: Keyboard, Hi-Res, 1/2 Brt., Double Buffered Animation, Mouse & Agnus tests.

A \$195.50 value for ..... \$99.50

THE GRAPEVINE GROUP, INC.  
3 Chestnut St., Suffern, NY 10901

Hours: 9-5 EST Fax: 914-357-6243

We Ship Worldwide



## The Amiga® Digest Video Series

Tape 1 - Mastering Workbench & CLI

Now That You've Got That Amiga,  
Learn How To Use It!

Tape 2 - DeskTop Publishing with PageStream

\$29.95 Each (Plus \$2.75/Tape S & H)

Tape 3 - The Power of AmigaVision

MasterCard, VISA, Check, C.O.D.

Tape 4 - Advanced DTP with PageStream 2.0

Call For Our Product Guide

Tape 5 - The Workbench 2.0 Video Guide

**Orders: 1-800-234-0678**

Horizon Video Productions, Inc.

Inquiries: (703) 971-0001

6076-A Franconia Road

Alexandria, VA 22310

Amiga and Workbench are trademarks of Commodore-Amiga, Inc. AmigaVision is a trademark of Commodore Electronics Limited. PageStream is a trademark of Soft-Logic Publishing Corporation

## Own a Bridgeboard™ ?

You're not alone anymore! Subscribe to CROSSINGS, the newsletter devoted to Amiga/PC compatibility. Published monthly since 1989. \$US40 U.S./Canada, \$US50 overseas air mail. (212) 369-8131 for more info.

► New! On-disk Bridgeboard orientation/tutorial (requires AmigaVision)

\$US19.95 + \$2.00 S&H - check or money order. (NY state residents include applicable sales tax.) Please allow 4-6 weeks for delivery.

Deland Editorial Services, Ste 26E, 345 E. 93 St., New York NY 10128

## Adult Graphics, Vol. 1

### THE ULTIMATE AMIGA GRAPHICS DEMO

Public domain collection of attractive adult graphics. 1 disk: \$10; 3 disks: \$25; 10 disks: \$39; 15 disks: \$44. Shipping and handling is INCLUDED! State that you are over 18.

Send Check or Money Order to:

Data Foundations • Dept. 100B, PO Box 9324, Akron, OH 44305

## AMIGA Programmers Wanted!

The AmigaWorld Tool Chest has created a fantastic opportunity to publish new, uncirculated Amiga programs. If you've written something special for the Amiga, and would like to earn some extra money, please contact us for our Tool Chest Author Guidelines. Perhaps you'll be the next Tool Chest Star!

AmigaWorld Tool Chest Submissions Dept.  
AmigaWorld Magazine  
80 Elm St., Peterborough, NH 03458

# InfoMarket

**• FREE - 6 DISKS - FREE •  
FULL OF AMIGA® HITS**

TRY US! Get 6/3.5" disks full of our best selling software. Animation Business - Games - Education - Utilities - Finance. Or order our 50+ image collection of clip art or our special Kid's package - all FREE!

**PAY ONLY \$5.00 SHIPPING/HANDLING**

SATISFACTION GUARANTEED SINCE 1985  
CREDIT CARDS ONLY • ORDER TODAY  
**SMC SOFTWARE PUBLISHERS**  
**619 931-8111**

Circle 90 On Reader Service Card.

## The InfoMarket

AMIGAWORLD's InfoMarket is a great opportunity for those with AMIGA products to reach over 95,000 Amiga owners. AmigaWorld is the only publication with a subscription offer reaching every new Amiga owner, national newsstand distribution by Kable News Co., and single copy sales in computer stores carrying the AMIGA as well as large bookstores such as B. Dalton and Walden Books.

To reserve your 1/12 or 1/9 page display ad call Heather Guinard at 1-800-441-4403 or 603-924-0100. We accept checks, money orders, MasterCard or VISA.

## AMAZING EXPRESS

1441 E. Fletcher Ave.  
Tampa, FL 33612

### SHARP SPECIAL

#### JX-100 (4X6) SCANNER

**\$ 649.96**  
NEW

#### JX-300 (PAGE) SCANNER

**\$ 1999.96**

Re-Conditioned

**AMIGA \* IBM \* MAC**

Order Only Line      BBS      Tech Support  
(800) 323-6511 (813) 977-3940 (813) 977-6511

**F R E E   S H I P P I N G !**

Circle 76 On Reader Service Card.

## COSMOSTRUCTION

### a space game of skill and strategy

In this addictive game you and your opponent take turns constructing energy ducts through space. Avoid mine fields, use warp gates and hinder the enemy as you both race towards completion!

- \* play against a friend or the computer
- \* hard drive installable, 1 Meg memory
- \* randomly drawn space fields
- \* A3000 version included      **\$29.95**

### The TAROT MASTER

This is the only animated Tarot program for the Amiga. Learn how to read the cards yourself or have the computer tell your fortune for you!      **\$24.95**

Please mail check or money order to:  
**EMPIRE GRAPHICS**  
P.O. Box 964  
Union, NJ 07083

Circle 60 On Reader Service Card.

### Special Offer on Amiga 1000 Computers

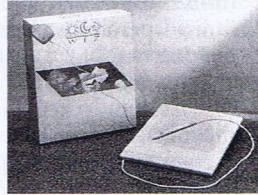
Amiga 1000 Computer .....	\$349.95
Amiga 1084 Monitor .....	\$199.95
1010 Disk Drive .....	\$ 69.95

Through a special purchase with Commodore Business Machines, we have a number of A1000 computers, 1010 drives and 1084 monitors in stock. They are refurbished by Commodore and are in like new shape with all cables, manuals, warranty card, etc. They come with a full 90 day warranty. Please order early as quantities are limited.

We also carry the following products for the A1000:  
Insider II w/OK (1.5MB Cap) .....\$199.00  
Each 512K RAM for Insider II .....30.00  
Kwik Start II .....79.95  
Special—With the purchase of an Amiga 1000, you may buy a 1010 Disk Drive and 1680 Modem for \$59.95.

**C** Software Hut, Inc.  To order call (800) 848-0079  
2534 S. Broad St. In PA or for info.  
Philadelphia, PA 19145 call (215) 462-2268  
Fax (215) 339-5336

88 On Reader Service Card.



**\$299.00**

A Full-Featured Digitizing Tablet  
Is Now Within Reach!

- 7.5" x 7.5" Active Area
- 1000 Lines Per Inch Resolution
- 5 Year CalComp Hardware Warranty
- OS Release 2 Compatible
- All Amiga® Models (uses serial port)
- 6-Button Cursor Optional

Includes Wiz Tablet, Pen, Cable, Power Supply & TriMedia Driver & Control Software

**TRIMEDIA Incorporated**

60 E. Hintz Rd.  
Wheeling, IL 60090  
(708) 520-0730

Circle 87 On Reader Service Card.

AMIGA™

**\* EXCLUSIVE \***

AMIGA™

### AMIGA A500 PC (MOTHER) BOARD

(Limited Quantity)  
• Assemble your own (full) Amiga computer • Each board is populated (all chips), tested & ready to go. Also sold unpopulated. • Keep as a spare (cost of the chips alone far exceed the cost of this board). • All other parts (power supply, drive, etc.) are available from us. • Fantastic savings over purchasing a new unit. • Overseas? We will convert it to PAL format for you.

#### CALL FOR PRICING INFORMATION



THE GRAPEVINE GROUP, INC.  
3 Chestnut St., Suffern, NY 10901  
1-800-292-7445 or 914-357-2424

Hours: 9-5 EST Fax: 914-357-6243



## NATIONAL DISKETTES

SONY 3.5" DSDD .51  
GENERIC 3.5" DSDD .39  
(MIN. 100)

800-345-8619 OR 415-490-4163

CALL FOR BEST PRICING ON ALL DISKETTES

## AUDIO GALLERY



**Audio  
Gallery**

Pinyin:  
English:  
Chinese:

REPEAT  
AUTO  
BACK

### Talking Picture Dictionaries

SPANISH \* GERMAN \* CHINESE \* JAPANESE

- All Words and Phrases Fully Digitized Speech
- Seven-Disk Set w/ Manual, On-line Dictionary, Quizzes
- 25-30 Topics such as Weather, Numbers, Food, etc.
- Romance Languages: \$89.95 Oriental Languages: \$129.95
- Please specify language when ordering. Free Brochure available. Send \$5 for demo disk (reduced on regular purchase).
- To purchase, send check or money order. All orders shipped UPS Ground. Add \$5 for COD or UPS Second Day Air.

Circle 100 On Reader Service Card.

# The Last Word

*Kudos, complaints, comments, concerns, and contributions from our readers.*

## SHAME ON YOU!

At first, I thought the magazine I received in the mail today was a belated April Fool's joke, but I slowly realized that this *Antic*-looking book was actually *AmigaWorld*! As a long-time *AmigaWorld* subscriber, I'm very disappointed in the changes. And to add insult to injury, there's not even a peep from the editorial staff about "streamlining operations to serve you better," or what not.

Casey Perry  
Columbus, Ohio

*Peep: Yes, Casey, we did combine three columns (Headliners, What's New?, and PD Prospector) into one (Overscan). This cleared the way for Video Suite, and left more elbow room for our bread and butter, which is articles and reviews.*

—Editors

## ON THE OTHER HAND...

I want to let you know that I very much approve of the changes that have been made in *AmigaWorld* over the past year or so. I would also like to add my voice to that of others who have requested more in-depth technical coverage in *AmigaWorld*. I'm sure there are technical articles that could be adapted from the *Tech Journal* for republication in *AW*.

Dan Young  
Brampton, Ontario

## OF ELEPHANTS AND CDTV

A few thoughts prompted by your June issue...

Elwood Smith's illustration of the elephant jumping out of the computer is brilliant. Elwood Smith is brilliant. Keep him. Give him a raise.

While I appreciate everyone's enthusiasm for CDTV, let's not throw out intelligent criticism of available titles.

World Vista Atlas, for instance, has some oddities. Check out the music of Switzerland. The text describes yodeling. The audio doesn't yodel! And the Indian music, described as employing a wide variety of instruments, especially percussion, has no percussion.

As for its images, have a look at the pictures of South Africa. Talk about avoiding the issues! The few people shown are black and very, very happy. No hint of white rule or shanty towns or apartheid—no hint of South African

On page 60 we have a strong, dangerous-looking woman bearing a "censored" sign. This may be intended for the sake of modesty, but it is ironic that opposite, on page 61, another woman is pictured dangling her panties in a very immodest fashion. I assume she comes with the car, right?

Now turn it around and imagine an ad for washing machines with a photo of the Maytag repair man dangling his undershorts in the air to attract the attention of all those hungry home-makers. I may have hit upon a revolutionary new concept in advertising. How about it, fellows?

It is hardly acceptable to sell home appliances using a sexual bias, nor is it acceptable to use sex in selling software. In 1991, machismo should definitely be out, and sincerity in.

C.A. Price  
Findlay, Ohio

If South Africa  
is too hot to handle,  
then show no  
images at all.

social structure whatsoever. Instead, a pot of molten ore, a few views of big industry, and some "happy natives." Come on; if South Africa is too hot to handle, then show no images at all.

Nevertheless, I do think CDTV is a hot item, and I look forward to some good technical articles on how to create and master CDTV titles.

Nick Didkovsky  
New York, N.Y.

## LETS GROW UP, BOYS!

In this day and age, many people are rethinking their way of life. Many others, however, are still deeply rooted in tradition, accepting without thinking the values and practices that underlie, for instance, using the attraction of the female sex to sell products to men. Appearing in *AmigaWorld*'s June issue are two examples of such advertising practices.

## HAVE LAP, MUST TRAVEL

I would like to take the capabilities of my Amiga with me when traveling, but it is extremely difficult to pack up my A2000 and carry it around. When is Commodore going to get with the technology and produce a laptop?

Lynn Bowler  
APO, N.Y.

## BOOSTING THE A1000

In response to Elizabeth Guffey's letter ("The Last Word," June '91) and other cries of frustration over A1000 performance, I can say I've been there too. But there's hope. Through a deal offered at the New York Amiga show in May '90, Spirit Technology upgraded my unit to 2MB of RAM and performed a PAL modification (graphics trafficking) for a reasonable price. Try them. Haven't heard from the guru but once or twice since then.

Barry L. Cohen  
New York, N.Y.

# YOU'RE A PRETTY GOOD PROGRAMMER ALREADY. BUT YOU PROBABLY DON'T KNOW IT YET.

Object Oriented Program Construction for Regular Ordinary People.

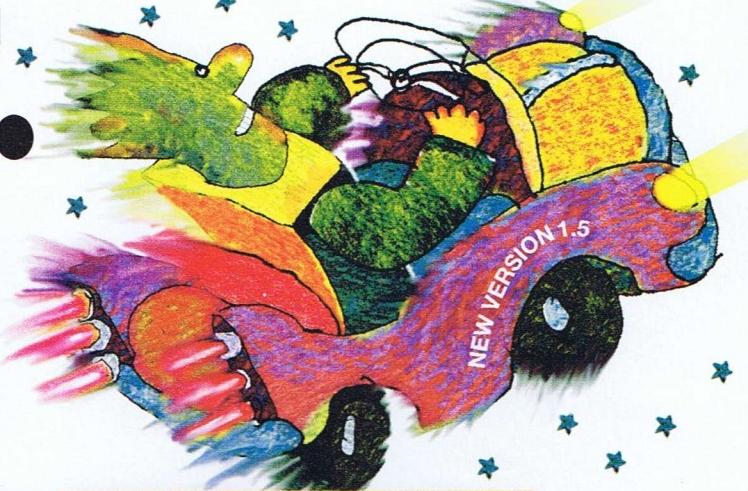
**W**hile you weren't watching, we turned you and the rest of the world's Amiga users into programmers.

With CanDo's intuitive interface and simple but powerful toolkit, ordinary people all over the country have been creating stand-alone utilities, data bases, word processors, vertical market applications, animated multimedia presentations, and all sorts of games.

Experienced programmers (many of them not ordinary at all) have been prototyping applications in CanDo for the sake of expediency and finding as often as not that there's little left to do when they get through. We get rave letters every day.

Give us a call. We'll read you some.

Better yet, just say the word and we'll send you a nice low cost sample of the whole CanDo package.



**INOVAtronics, Inc.**

8499 Greenville Avenue

Suite 209B

Dallas, Texas 75231

214 340-4991

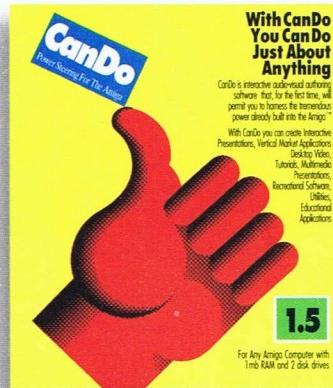
FAX: 214 340-8514

Trademarks:

Amiga: Commodore-Amiga, Inc.

INOVAtronics, CanDo: Inovatronics, Inc.

Circle 75 on Reader Service card.



**TEST DRIVE CANDO 1.5  
FOR JUST 10 BUCKS.**

**1-800-875-8499**

Give us your address and \$10\* and we'll send two disks and a CanDo manual by return mail. You'll have created a program before David Letterman goes off.

**Get a fresh look at what  
your Amiga is capable of.**

\*Buy CanDo later and we'll give you your sawbuck back.



# With every VIDEO TOASTER® you get the 6 most powerful graphics products ever created for the Amiga...



**1 LightWave 3D Modeling, Rendering, and Animation** Create true network quality 3D graphics in 1536 x 960 resolution with 16.8 million colors. AmigaWorld says it "absolutely blows away everything."

**2 Overlay Genlock and Luminance Key** Overlay Amiga graphics on any live video source. Use the luminance key to overlay live video like the weathermap effect.

## 3 ToasterPaint 24-bit Hi-res Paint System

This feature-packed tool is the only PC-based paint system with 24-bit YIQ-encoded broadcast quality video.

## 4 Two 24-bit Frame Buffers

The ONLY video output for the Amiga that is legally broadcastable at the network level.



**5 Toaster Character Generator 24-bit**  
**35 nanosecond resolution**

Twice the resolution of software-only Amiga CG's and over 4000 times the color.

**6 Toaster Real-Time 24-bit Frame Grabber**

Freeze video instantly from your color video camera, camcorder, laserdisc, or cable TV.



ABCDEFHIJKLMNOPQ

## and something truly phenomenal... your own TV studio.



## 7 Toaster Digital Video Effects

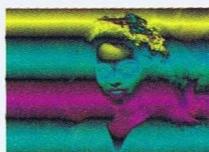
For the first time you can process live video on your desktop just like the networks do. The Toaster lets you warp, spin, zoom, trail, and squeeze any of four live video sources in real-time and in 24-bit color.

## 8 Four-Input Production Switcher

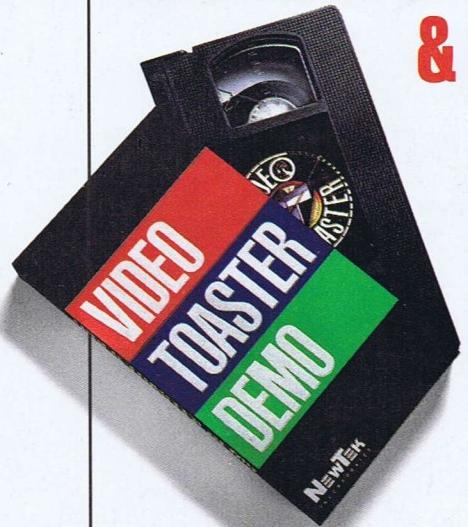
Perform unique fade and pattern transitions between any of seven sources. Many of which are impossible even on high-end gear.

## 9 ChromaFX Color Processor

Get complete control of the brightness, contrast and color of your video. Give your video an old film sepia tone or high-contrast look.



## Call now for the Video Toaster Demo Tape & See for yourself!



See the incredible results possible with the Video Toaster. Starring NewTek's own Kiki Stockhammer, and featuring animation by 3D artist and LightWave programmer Allen Hastings. Like the Toaster itself, this videotape will knock your socks off. \$4.95 includes shipping and handling. Visa, MC, AmEx or COD orders accepted. Call (800) 843-8934 or (913) 354-1146.

**\$4.95** includes shipping and handling

**1-800-843-8934**



**\$1595** The Video Toaster card and software are available at an Amiga dealer near you.

**NewTEK**  
INCORPORATED

Video Toaster, LightWave 3D, LightWave Modeler, ToasterPaint, ToasterCG, and ChromaFX are all registered trademarks of NewTek, Inc. Amiga is a registered trademark of Commodore-Amiga, Inc. Any videotape input to the Toaster must be time base corrected. Toaster compatible time base correctors start at \$995 retail. The Video Toaster requires an Amiga 2000 computer with hard drive and at least five megs of RAM.  
© NewTek, Inc. 1991